SHEAR DIAMONDS LTD.

CONTINGENCY MANAGEMENT PLAN
JERICHO DIAMOND MINE, NUNAVUT

REPORT

FEBRUARY 2011
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SHEAR DIAMONDS LTD.

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ACRONYMS & ABBREVIATIONS

AA	Atomic Absorption Spectrophotometry
ABA	Acid Base Accounting
ACM	Asbestos-containing Material
AEM	Aquatic Effects Monitoring
AIA	Aquatic Impact Assessment
AIRS	Adaptation and Impacts Research Section
ANCOVA	Analysis of Covariance
ANFO	Ammonium Nitrate Fuel Oil Explosives
ANOVA	Analysis of Variance
APEC	Areas of Potential Environmental Concern
ARD	Acid Rock Drainage
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
BACI	Before-after-control-impact
CALA	Canadian Association for Laboratory Accreditation
CCME	Canadian Council of Ministers of the Environment
CDA	Canadian Dam Association
CPK	Coarse Processed Kimberlite
DIAND	Department of Indian Affairs and Northern Development
DFO	Department of Fisheries and Oceans
DO	Dissolved Oxygen
EBA	EBA, A Tetra Tech Company
EC	Electric Conductivity
EIS	Environmental Impact Statement
EOC	Emergency Operations Centre
EPP	Emergency Preparedness Plan
ERP	Emergency Response Plan
ESA	Environmental Site Assessment
FSCF	Fuel Storage Containment Facility
FPK	Fine Processed Kimberlite
GC/FID	Gas Chromatograph - Flame Ionization Detector
GTC	Ground Temperature Cable
Hazmat	Hazardous Materials
HDPE	High Density Polyethylene
HVAS	High Volume Air Sampling
HWTA	Hazardous Waste Transfer Area
ICP-MS	Inductively Coupled Plasma – Mass Spectrometry
IDLH	Immediately Dangerous to Life and Health
INAC	Indian and Northern Affairs Canada
KIA	Kitikmeot Inuit Association
LBP	Lead-based Paint
LPRM	Long-term Post-reclamation Monitoring
MANOVA	Multivariate Analysis of Variance

MSDS	Material Safety Data Sheets
NIRB	Nunavut Impact Review Board
NP	Neutralization Potential
NWB	Nunavut Water Board
PHC	Petroleum Hydrocarbons
PKCA	Processed Kimberlite Containment Area
PPE	Personal Protection Equipment
QA	Quality Assurance
QC	Quality Control
RBC	Rotating Biological Contactor
RCM	Reclamation Construction Monitoring
ROM	Run of Mine
RPD	Relative Percent Difference
RRPK	Recovery Rejects Processed Kimberlite
SCBA	Self-contained Breathing Aparatus
Shear	Shear Diamonds (Nunavut) Corp.
SOP	Standard Operating Procedure
SPRM	Short-term Post-reclamation Monitoring
TDC	Tahera Diamonds Corporation
TDGR	Transportation of Dangerous Goods Act (RSNWT 1988) and Regulations
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TSS	Total Suspended Solids
WSCC	Workers' Safety and Compensation Commission of the Northwest Territories and Nunavut
WHMIS	Workplace Hazardous Materials Information System
WWTP	Wastewater Treatment Plant

2011 Water Licence Renewal Documents

AEMP	Aquatic Effects Monitoring Plan
AQMP	Air Quality Management Plan
CAMP	Care and Maintenance Plan
CMP	Contingency Management Plan
EP-RP	Emergency Preparedness and Response Plan for Dam Emergencies
GMP	General Monitoring Plan
ICRP	Interim Closure and Reclamation Plan
LDP	Preliminary Landfill Design Plan
LMP	Landfill Management Plan
LFDP	Preliminary Landfarm Design Plan
LFMP	Landfarm Management Plan
OMS	Operations, Maintenance, and Surveillance Manual
PKMP	PKCA Management Plan
SWMP	Site Water Management Plan
WEMP	Wildlife Effects Management Plan

WMP	Waste Management Plan
WRMP	Waste Rock Management Plan
WTMP	Wastewater Treatment Management Plan

1.0 INTRODUCTION

1.1 General

The Jericho Contingency Management Plan (CMP) has been developed to provide a description and methodology for preventing, mitigating, and minimizing the impacts of spills at Jericho Diamond Mine, NU (Jericho).

The plan fulfills the requirements specified in Part J and Schedule J of the Jericho Mine Water Licence NWB1JER0410 (issued December 21, 2004). Shear Diamonds (Nunavut) Corp. (Shear) assumed control of the project in August 2010. Since that time, Shear has discovered that comprehensive site infrastructure information along with equipment and chemical inventory was not well maintained under previous ownership and management,.

This CMP has been prepared with information from the previous Contingency Plan (TDC 2008); regulatory comments provided on that plan; external anecdotal information where available; and on the most current legislation, regulations, and guidelines. The plan has been developed to reflect Shear's commitment to the best practices in environment, health, and safety stewardship.

The plan describes the steps used to prevent, identify, respond to, and remedy spills during the current care and maintenance activities. Once Shear has had an opportunity to thoroughly investigate the site, gather information, and conduct an inventory in 2011, the CMP will be revised (if required). Subsequent revisions of this CMP will be submitted to the NWB for review and approval. The updated CMP will be reviewed annually and further updated as necessary to reflect changes in operation, technology, legislation, and regulations.

1.1.1 Company Name, Mailing Address, and Location

Shear Diamonds (Nunavut) Corp.
Suite 220, 17010 - 103 Avenue
Edmonton, Alberta T5S 1K7
Phone: 780.435.0045 Fax: 780.428.3476
Email: info@shearminerals.com
Attention: Michelle Tanguay, Environment Manager

The head office of the Company is located in Edmonton, Alberta.

Effective date of this Contingency Management Plan: February 28, 2011

1.2 Objective of the Contingency Management Plan

The objectives of this plan include:

- Providing a practical source of information required to assess spill risks, develop an effective countermeasures program, and respond in a safe and effective manner to spill incidents;
- Establishing procedures and processes to be followed in the event of a dam emergency; and

- Providing procedures for handling hazardous materials.

The plan covers the care and maintenance activities related to mine and processing infrastructure, and ancillary operations including airstrip, sewage treatment plant, and catering. It encompasses the activities of all Shear and contractor employees as well as visitors to the mine site. Shear does not expect that significant revision to the CMP will be required when Jericho resumes mining operations.

The main purposes of the plan are:

- To provide information and training for personnel at Jericho in spill prevention, response and preparedness;
- To enable personnel to respond in a coordinated manner, minimizing injury, impacts and loss of property;
- To provide information and training in clean up procedures; and
- To ensure the safe and efficient handling of hazardous materials.

The plan is for Jericho Diamond Mine and is not intended for use, without careful assessment of applicability, by people trained in spill and emergency response at other facilities operated by Shear or a third party.

1.3 Background Information

The Jericho Diamond Mine is located approximately 260 km southeast of Kugluktuk, NU, and 30 km north of Lupin Mine. The Jericho Mine was constructed and operated by Tahera Diamond Corporation (TDC) between 2004 and 2008. In January 2008, mining operations were suspended by TDC, and the site was placed under care and maintenance. Shortly thereafter, Indian and Northern Affairs Canada (INAC) assumed control of the care and maintenance activities for the site. In August 2010, Shear purchased the Jericho Mine and its assets and assumed the responsibility for the site.

The Jericho Diamond Mine is an open pit diamond mine located near the north end of Contwoyto Lake. The nearest hospital is located in Yellowknife, 420 km south-southwest of the mine site. The mine has a land-based open pit, secured to limit access, an idle diamond processing plant, an emulsion plant empty of any product, waste rock and coarse processed kimberlite handling facilities, fine processed kimberlite containment area, fuel farm, accommodations complex, powerhouse, water intake, mine shop, airstrip, and connecting roads. The overview of the site plan and infrastructures are presented in Figure 1 and 2.

Presently, the mine remains under care and maintenance as Shear evaluates the mineral resource and investigates the milling and processing capabilities of the existing infrastructure.

1.4 Document Usage and Distribution

The appropriate procedures in this plan are to be followed for handling hazardous materials and for product spills or emergency, whether reportable to external authorities or not. The responsible supervisor will decide what further action is appropriate in each case.

All employees and contractors will be presented with this plan during their on site orientation. All employees and contractors will be made aware of the locations of the plan at the mine site, in the head office in Edmonton and the office in Toronto. Employees and contractors issued this plan must become familiar with its contents relevant to their responsibilities. It is important that the area of responsibility of the individual is well understood before beginning any emergency response training and actions. Training sessions will be scheduled during orientations. During care and maintenance, all employees and contractors will be made aware of the locations of spill kits and spill kit contents, and will be trained in the use of spill equipment and response.

This plan has been distributed to:

Internal:

- Pamela Strand — President, CEO, Shear
- Julie Lassonde — Executive Chair, Shear
- Fred Mason — VP Operations, Shear
- Jennifer Burgess — VP Exploration, Shear
- Jeff Hunter — Site Manager, Shear
- Michelle Tanguay — Environment Manager, Shear
- Allison Rippin Armstrong — Director of Environment and Permitting, Shear

External:

- Nunavut Water Board
- Indian and Northern Affairs Canada (INAC)
- Kitikmeot Inuit Association (KIA)
- Environment Canada
- Department of Fisheries and Oceans (DFO)
- Government of Nunavut, Department of Environment

This plan includes a discussion of general preventive measures that can be taken to ensure spills do not happen; emergencies are handled effectively, minimizing risk to responders; and hazardous materials are transported, stored, and used correctly. The mine personnel's participation is key to preventing accidents and injuries. Personnel shall:

- Follow the suggestions contained in this plan where they apply; and
- Inform the supervisor of any additional measures or better ways of handling emergencies and hazardous wastes and preventing spills.

1.5 Internal Evaluation Procedure

All incidents are reviewed by the Site Manager, the VP Operations, and, where applicable, the Environment Manager. Incident response is reviewed for adequacy. Any deficiencies will be addressed as a priority and the contingency management plan modified as appropriate. The organizational chart at Jericho is presented in Figure 3.

1.6 Plan Continual Improvement

Despite careful planning, it is highly probable that certain components of the CMP will need to be modified over time. It will therefore be necessary to audit or review the plan to identify those components needing correction, adjustment, or upgrading. Of most importance is the review of aspects of the plan affecting safety of employees, contractors, visitors of the facility, and the general public. Operational aspects of the plan and any paperwork that deals with the plan will be reviewed. The goal is to continually audit all aspects of the plan for effectiveness.

Formal evaluations of the CMP will be documented; deficiencies will be noted in the report; and progress in addressing deficiencies will be tracked in writing. Responsibilities to address deficiencies and accountabilities will be assigned, and deadlines for addressing required changes will be set. The Environment Manager, in association with the VP Operations and the Site Manager, assumes overall responsibility for the process.

1.7 Regulatory Framework

Regulatory requirements are outlined in this section. Regulations pertinent to emergency response are those governing mine health and safety and spill response. Regulations pertinent to hazardous substances and wastes are federal and territorial acts and regulations.

1.7.1 Mine Safety

This plan conforms in general to requirements as set out in Nunavut/NWT legislation, specifically Part VIII, Division 3 of the *Nunavut/NWT Mine Health and Safety Regulations*, and includes the following:

- List of the hazards and possible consequences;
- Required countermeasures;
- Inventory of resources needed to carry out the planned actions; and
- Provision for establishment of the necessary emergency organization and procedures.

Shear will proactively comply with provisions of the Act and Regulations. Management and employees will evaluate previous accidents and the potential for serious accidents and injuries in assigning inspection frequencies beyond those mandated in the Act.

1.7.2 Spill/Emergency Response

Under the *Spill Contingency Planning and Reporting Regulations of the Environmental Protection Act*, storage of “contaminants”, by which is meant hazardous substances as defined by the *Transportation of Dangerous*

Goods (TDG) Act and *Regulation*, requires preparation and filing of a spill contingency plan that meets the requirements of the Regulation, Section 4(2). Requirements of the Regulation are similar to those of the Mine Health and Safety Act.

Commercial carriers using the Tibbitt to Contwoyto Winter Road require approved spill plans to use the road. As a commercial user of the road, Shear is issued updates of the spill plan as they are available.

1.7.3 Transportation and Handling of Hazardous Materials

Transportation of hazardous materials is governed by the federal *TDG Act* and *Regulation*. Mine personnel handling hazardous materials will receive TDG training. All mine employees will have *Workplace Hazardous Materials Information System* (WHMIS) training, which includes familiarization with *Material Safety Data Sheets* (MSDS) for materials they will handle. Employees who handle hazardous materials are made familiar with the mine's Hazardous Materials Management Plan (WMP, EBA 2011j), which sets out procedures for handling these materials and wastes that result from routine use.

1.7.4 Regulation of Toxic Substances

Toxicological impacts to the environment affecting other organisms are governed by Environment Canada and the Department of Fisheries and Oceans Canada (DFO) through the *Canadian Environmental Protection Act*, the *Fisheries Act*, and the Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines*. Clean-up of contaminated sites must meet the criteria as set out in the latter document or be managed on a risk-based basis.

On lands within the jurisdiction of the Government of Nunavut (usually defined as Commissioner's Lands), Department of Environment, Environmental Protection Service is responsible for spills, contaminated sites, and hazardous wastes.

On Inuit Owned Lands, the Kitikmeot Inuit Association (KIA) has an interest in any contamination from accidental spills.

1.8 Linkage to Other Management Plans

The CMP is part of the site-wide management system. Other management plans that are related to or refer to the CMP include:

- Aquatic Effects Monitoring Plan (AEMP);
- Care and Maintenance Plan (CAMP);
- General Monitoring Plan (GMP);
- Processed Kimberlite Management Plan (PKMP);
- Site Water Management Plan (SWMP);
- Waste Rock Management Plan (WRMP);
- Wastewater Treatment Management Plan (WTMP);

- Emergency Preparedness and Response Plan for Dam Emergencies (EP-RP)
- Landfarm Management Plan (LFMP); and
- Fuel Storage Containment Design Plan (FSP)

2.0 COMMUNICATIONS

2.1 Emergency Response Organization

Shear's Site Manager is responsible for the immediate emergency response and communication with both the internal and external emergency contacts and reports directly to the VP Operations of Shear:

Mr. Jeff Hunter
Site Manager
Jericho Diamond Mine
Phone: To Be Established
Email: jeff@shearminerals.com

Mr. Fred Mason
VP Operations
Suite 220, 17010 – 103 Avenue
Edmonton, Alberta T5S 1K7
Phone 403.542.8526 (24 hour cell phone)
Email: fmason@shearminerals.com

The VP Operations reports directly to the Chief Executive Officer (CEO) of Shear. Shear's CEO is responsible for the overall management of Jericho Diamond Mine, and is the media contact:

Ms. Pamela Strand, M.Sc., P.Geol.
President, CEO and Director
Suite 220, 17010 - 103 Avenue
Edmonton, Alberta T5S 1K7
Phone: 780.903.0820 (24 hour cell phone)
Email: pstrand@shearminerals.com

The Environment Manager reports directly to the Director of Environment and Permitting and the VP Operations:

Ms. Michelle Tanguay
Environment Manager
Suite 220, 17010 – 103 Avenue
Edmonton, Alberta T5S 1K7
Phone: 250.362.9530 (24 hour cell phone)
Email: michelle@shearminerals.com

2.2 Emergency Assessment and Response

When an emergency is recognized, the first step is to alert all potentially affected personnel using the fire alarm system, telephone, and/or two-way site radios as appropriate. The second step is to notify the supervisor or contact the emergency and spill coordinator who will assume charge. All personnel are responsible for following the instructions of the emergency and spill coordinator, who will activate appropriate contingency plans in consultation with senior management.

Employees will record any information they receive as soon as they have an indication that an emergency may exist. The information is used for the emergency assessment.

Table 1 provides the emergency reporting requirements.

Emergency-specific procedures for potential spills that could arise at Jericho are attached in Appendix A. The spill response and reporting flowsheets are presented in Figure 4 and 5. The spill-specific response flowsheets are presented in Figure 5 through 13.

Table 1 Emergency Reporting Requirements

Who is reporting?	**Nature of Emergency**
Date, time Person reporting, Title Telephone number (if applicable)	Type of emergency ▪ Spill of hazardous substance ▪ Fire ▪ Uncontrolled explosion ▪ Accident/medical emergency ▪ Weather emergency ▪ Dam break ▪ Other
Who has been notified (refer to Organization Chart)	
Who is in charge of the spill? Name, Title Phone number	Injury or death ▪ If yes, number, names
Emergency Information Location Date and Time	If hazardous substance spill ▪ Type of container (if applicable) ▪ Material involved (if known) ▪ Leaking (if applicable) ▪ How quickly (if applicable) ▪ Volume/amount of release (if known) ▪ Contamination of soil and/or snow ▪ Contamination of surface water ▪ Contamination of air ▪ Type of incident
	Other materials involved (if applicable)
	Wildlife or fish involved

2.3 Emergency Contacts

Emergency response contact telephone numbers are listed in Tables 2 (internal) and 3 (external).

During emergency situations, it is imperative that personnel who are responsible for responding, or will direct emergency operations, are notified immediately. In addition, at the Site Manager's discretion, Shear's CEO and the external organizations will be notified.

2.3.1 Internal Communication

For most emergency communications, the site phone and two-way radio system will be used. Immediate evacuation alarms are incident-specific and are discussed briefly below. Emergencies called in by phone will be relayed to the supervisor and/or Site Manager.

There is a two-way radio system with emergency protocol in place.

All radios on site operate on the same frequency. There are five channels on the radio system.

1. Emergency
2. LAD (Truck channel for winter road)
3. Environment and Exploration
4. Site Services
5. Mine Operations

During care and maintenance activities, Shear may review the assignment of the radio channels to meet site requirements. Site personnel will be trained in proper radio use protocols and the channel assignments. Channel directories will be kept up-to-date and affixed to the radios.

Shear understands that a pager system was installed to notify the emergency response team, and was activated by the site medic. Shear will confirm the presence of the pager system during site care and maintenance activities; however, a dedicated mine rescue/emergency response team will not be implemented until mining operations resume.

A 24-hour emergency phone and/or radio contacts will be posted throughout the mine site. All employees and contractors will be familiarized with the location of these postings during orientation.

At the plant, accommodation complex, power house, wastewater treatment plant, emulsion plant, and truck shops, fire alarms are equipped with bells that will ring continuously when activated, until reset.

2.3.2 External Communication

External communications regarding Jericho emergencies are principally of two types:

- Requesting external aid or assistance; and
- Providing information externally.

Requests for aid or external communication regarding the mine emergency should be made by the VP Operations or the most senior on-site manager. Any third party inquiries will be referred to the CEO of Shear or the responsible parties.

Table 2 Internal Emergency Contact Numbers (24 hour numbers)

President, Shear, Pamela Strand	780.903.0820 (cell)
VP of Operations, Shear, Fred Mason	403.542.8526 (cell)
Director of Environment and Permitting, Shear, Allison Rippin Armstrong	780.995.2499 (cell)
Manager of Environment, Shear, Michelle Tanguay	250.362.9530 (cell)
Site Manager, Shear, Jeff Hunter	To be established

Numbers for site will be established in the spring of 2011 once the site is occupied. Once the numbers are in place, this table will be updated and provided to the internal and external distribution lists.

Table 3 External Emergency Contact Numbers

Health and Safety Emergency	
Stanton Territorial Hospital, Yellowknife, NT	867.669.4111
Stanton Territorial Hospital Poison Control, Yellowknife, NT	867.669.4100
Poison and Drug Information Service, Calgary, AB	800.332.1414
RCMP in Yellowknife, NT	867.669.1111
RCMP in Cambridge Bay, NU	867.983.0123
RCMP in Kugluktuk, NU	867.982.0123
Workers' Safety and Compensation Commission (WSCC), Iqaluit, NU	877.404.4407
North Slave Region Fire Management, Yellowknife, NT	867.920.6115
Fire Marshall's Office, Yellowknife	867.873.7944
Environmental Emergency	
Government of Nunavut, Environmental Protection Service, Department of Sustainable Development, Iqaluit, NU	867.975.5900
Nunavut Water Board, Gjoa Haven, NU	867.360.6338
INAC Field Operation Manager, Iqaluit, NU (Mr. Peter Kusugak)	867.975.4295
INAC Water Resources, Iqaluit, NU (Inspector)	867.975.4550
INAC Resource Management, Kugluktuk, NU (Mr. Baba Pederson)	867.982.4306
Environment Canada, Environmental Protection Branch, Yellowknife, NT	867.766.3737
DFO, Area Manager Nunavut, Iqaluit, NU	867.975.8011
DFO, Habitat Coordinator, Yellowknife, NT	867.669.4911
DFO, Director, Conservation and Compliance, Yellowknife, NT	867.669.4903
North Slave Wildlife Emergencies, Yellowknife, NT	867.873.7181
Nunavut Water Board, Gjoa Haven, NU	867.360.6338
Kitikmeot Inuit Association (KIA), Kugluktuk, NU	867.982.4010
Department of Environmental Health, Cambridge Bay, NU	867.983.7328
NWT/Nunavut Spill Hotline, 24 hr Emergency, Yellowknife, NT	867.920.8130

Table 3 External Emergency Contact Numbers

CANUTEC (Spill Support Information)	613.996.6666
Canadian Nuclear Safety Commission 24 hr Duty Officer	613.995.0479
Stuart Hunt & Associates Ltd., St. Albert, AB (Nuclear)	800.661.4591
Charter Aircraft (for Evacuation)	
Air Tindi, Yellowknife, NT	867.669.8200
First Air, Yellowknife, NT	867.983.2077
Arctic Sun West, Yellowknife, NT	867.873.4464
Nunasi Helicopters, Yellowknife, NT	867.873.3306
Canadian Helicopters, Yellowknife, NT	867.669.9604
Great Slave Helicopters, Yellowknife, NT	867.873.2081
Adlair Aviation, Cambridge Bay, NU	867.983.2569

3.0 RISK ASSESSMENT

3.1 Health Risk

3.1.1 Hazard Identification

Health hazards of materials to be used at the mine are contained in the MSDS provided at the mine camp, mine offices and shops, in conformance with WHMIS. Employees and contractors should review the MSDS prior to handling any hazardous materials to familiarize themselves with the potential risks and remedial steps in the event of an incident. Copies of MSDS of on-site chemicals are included in Appendix B.

3.1.2 Dose-Response

Dose-response information is also provided in the MSDS.

3.1.3 Exposure Assessment

There are three principal routes of exposure:

- Ingestion (unlikely in the work environment with adequate precaution in the kitchen and cafeteria);
- Inhalation; and
- Skin exposure/absorption.

While direct ingestion is unlikely, food should not be consumed near or while handling controlled products.

Exposure from inhalation will occur for spilled products that readily volatilize (form a gas or vapour) at ambient temperature and from products, such as fine dust, which readily become airborne.

Skin exposure is possible in handling other products without protective clothing. Refer to the MSDS for additional information.

3.2 Qualitative Risk Assessment

A qualitative risk analysis is carried out for possible emergencies at Jericho as outlined in the *Industrial Emergency Response Planning Guide* (MIAC 1996). Table 4 lists the risk analysis for the hazardous substance spill.

Table 4 Risk Analysis Worksheet

Risk	Frequency	Consequences			Result (Freq. X Conseq.)
		Personal	Environment	Infrastructure	
Hazardous Substance Spill in excess of reportable quantities					
Fuel Farm	Possible	Negligible	Negligible	Negligible	Possible-negligible
Explosives Storage	Possible	Critical	Marginal	Marginal	Possible-critical
Diamond Plant	Possible	Marginal	Negligible	Negligible	Possible-marginal
Access Roads	Possible	Negligible	Marginal	Negligible	Possible-marginal
Open Pit	Possible	Marginal	Negligible	Negligible	Possible-marginal
Airstrip	Unlikely	Negligible	Marginal	Negligible	Unlikely-marginal
Power House	Possible	Marginal	Negligible	Negligible	Possible-marginal
Truck Shop	Possible	Marginal	Negligible	Negligible	Possible-marginal
Accommodation Complex	Unlikely	Marginal	Marginal	Marginal	Unlikely-marginal

4.0 EMERGENCY RECOGNITION, PREVENTION, AND RESPONSE

4.1 Emergency Recognition and Prevention

Being aware of potential emergency situations is the first step in emergency recognition and prevention. All employees, contractors, and visitors will be made aware of potential emergencies at the mine in their initial orientation training. Routine emergency preparedness update training will also be provided to all employees and contractors at the mine and plant.

Most emergencies at industrial sites are due to worker injury caused by accidents. An effective safety and accident prevention program is therefore a key component of emergency prevention. An effective safety culture is also a necessary component of an emergency preparedness plan. Standard operating procedures (SOPs) will be established for work conducted at Jericho and incorporate safety as the number one consideration.

4.2 Accounting for Employees

The Emergency and Spill Coordinator is responsible for accounting for all personnel at the assembly points. If any are missing, the Emergency and Spill Coordinator must be notified immediately of the name and last known location. The Coordinator will then coordinate with the Site Manager to locate the missing personnel consistent with their own personal safety. Employees are instructed not to re-enter the area until the all-clear signal is given by the Emergency and Spill Coordinator.

4.3 Removal of Injured Employees

If injured employees are found, they should be carefully moved out of the area of concern only by those trained to do so, and they must be wearing proper PPE. Depending on the injury, it may be necessary to wait until the emergency response vehicle arrives. If the injury occurs as a result of a hazardous substance spill, the injured person(s) may require emergency decontamination, which will be carried out by trained First Responders.

4.4 Assessment of Emergency

The Emergency and Spill Coordinator will determine whether assistance is required to make an assessment of the emergency situation.

4.5 Initial Calls to Outside Resources and Agencies

If immediate assistance is needed, the contact information and communication procedure should follow those specified in Section 2.0.

4.6 Shut Down of Certain Services and Buildings

During an emergency, it may be necessary to shut down selected services and buildings. The plant and site supervisors will make this decision with input from others, such as the catering department. Care must be taken not to shut down too many areas as this may compromise resolution of the emergency.

4.7 Post Incident Review

Depending on the seriousness of the incident, the emergency and spill coordinator or designate, Site Manager, Environment Manager, VP Operations, and external agencies involved will hold a meeting after the incident to discuss problems, assess responsiveness to the emergency, and suggest corrective measures to reduce the risk of future occurrence.

4.7.1 Routine Inspections and Preparedness

A key part of preparedness for emergencies is to ensure that all preparations, response procedures, and emergency equipment are in place and functioning as intended. There are two aspects:

- Routine site inspections; and
- Training updates.

A building inspection form for monthly (or more frequent) inspection is provided in Appendix C and will be amended annually if required.

4.8 Plan Activation and Response Mobilization

The plan activation and response mobilization will depend on the nature of the emergency or spill, substances involved, and the location. Plan activation is best handled by reduction of responses to scenarios and modification as required to suit the specific incident.

4.9 Personal Protection Equipment

The personal protection equipment (PPE) that will be available at Jericho and location of equipment is shown in Table 5.

Table 5 Site Personal Protective Equipment Inventory

Equipment	Mine Site	Diamond Plant	Wastewater Treatment Plant	Accommodation	Mobile Equipment
Slickers/coveralls	✓	✓	✓	✓	N/A
Goggles	✓	✓	✓	✓	N/A
Gloves	✓	✓	✓	✓	N/A
Respirators	✓	✓	✓	✓	N/A
Self-contained breathing apparatus (SCBA)	✓	✓	N/A	N/A	N/A
First aid kit	✓	✓	✓	✓	✓
Fire extinguisher	✓	✓	✓	✓	✓

PPE is inventoried and inspected regularly (minimum monthly for all equipment; weekly for First Responders' equipment); worn-out or damaged equipment will be replaced. Inventory and inspection records are kept by the Health and Safety personnel. The SCBA will only be used by trained personnel. Any personnel (employees and contractors) who require use of respirators will be fit-tested according to WSCC requirements. The location of fire extinguishers is clearly marked at the mine, and the proper usage is part of the initial orientation for mine employees and contractors.

5.0 SPILL PREVENTION, COUNTERMEASURES AND CONTROL

Substance-specific spill response procedures for major hazardous substances handled at Jericho are provided in Appendix A.

5.1 Identification of Potential Failures Causing Spills

Table 6 summarizes major products in alphabetic order. These products were used at Jericho and diamond processing plant during the operation under the previous ownership. Quantities listed were on-hand storage amounts at the time that the previous Contingency Plan (TDC 2008) was completed. Table 7 lists the hydrocarbon products storage locations and quantities.

During the Care and Maintenance activities in 2011, a materials survey will be conducted through the mine site to identify and inventory all materials that remain at Jericho.

Table 6 List of Products and On-Hand Quantities

Substance	Estimated Quantities	Risk of Spill	Comments
Citric Acid	26.5 L (eq. 7 gallon)	Low	In 10 gallon pail
Diesel	Approx. 3 million L	Low	In fuel farm with containment berm
Ethylene glycol (heating system)	Not Applicable	Very low	In pipes in heating system
Ethylene glycol (vehicle antifreeze)	4 Cubes (1,100 L each)	Low	In mine shop in silled area
Ferrosilicon	98 tonne	Nil	Non hazardous
Flocculent – Magniflox 156, or equivalent	14,000 kg	Low	In plant in controlled drainage area
Floor Dry	6 Bags (50 kg each)	Nil	In the accommodation complex and mine shop
Gasoline	14 Barrels (205 L each)	Low	In fuel farm with containment berm
Hydraulic Oil	2 Cubes (1,100 L each)	Low	Stored in covered warehouse in silled area
Hydrochloric Acid	14 Jugs (4 L each)	Low	In controlled area of the plant
Jet Fuel (Jet A)	60,000 L	Low	Stored at airstrip in bermed tank, no proximity to water
Jet Fuel (Jet B)	Unknown	Low	Stored at airstrip, no proximity to water
Motor Oil	12 Cubes (1,100 L each)	Low	In mine shop or lined containment area
Nitric Acid	68 Jugs (2.5 L each)	Low	In fume cupboard in plant
Nitric Acid	1,100 kg	Moderate	77 kg bags, 100% contained
Petroleum Grease	2 Cubes (1,100 L)	Nil	In mine shop or cold storage containers
Potassium Nitrate	3.5 Containers (10 kg each)	Low	In pellet form in controlled drainage area
Soda Ash	19 L (eq. 5 gallons)	Low	10 gallon pail
Sodium Hydroxide	22 Bags (50 kg each)	Low	In pellet form, in lab in plant; in controlled drainage area
Sodium Hydroxide	6 Barrels (20 L each)	Low	Liquid form in controlled drainage area
Sodium Hydroxide	5 Containers (20 L each)	Low	Solution, in controlled drainage area
Transmission Oil	4 Cubes (1,100 L each)	Low	In mine shop or lined containment area

Table 7 Hydrocarbon Products Storage Locations and Quantities

Substance	Location	Quantity
Diesel	Fuel farm – 100% contained	Eight 500,000 L bulk tank, and Four 1,500,000 L bulk tanks (estimated approx. 13,000 L residual fuel in each tank) 50– 205 L drums
	Generator supply tank	64,000 L tank, in lined berm
	Truck shop	15,000 L, double walled tank
	Vehicle fuel leak – any road on the mine site	Unknown at this time
	Hazardous Waste Transfer Area	To be confirmed during inventory

Table 7 Hydrocarbon Products Storage Locations and Quantities

Substance	Location	Quantity
	Emulsion Plant	22,500 L, double walled tank
Gasoline	Snowmobile refuelling, general accommodations area	20 – 205 L drums
Jet Fuel A	Airstrip	64,000 L, 1 tank, lined berm 200 – 205 L drums
Propane	Laydown near Hazardous Waste Transfer Area	To be confirmed during inventory
Jet Fuel B	Airstrip and helipad	To be confirmed during inventory
Lubricant Oil	Truck shop	To be confirmed during inventory
Waste Oil	Hazardous Waste Transfer Area	To be confirmed during inventory

5.1.1 Petroleum Products

Bulk fuel tanks located in the fuel farm are within an impermeable berm capable of holding a minimum of 110% of the capacity of the largest tank. Smaller fuel tanks (not including 205 L barrels) required for refuelling are placed in either a containment berm or a silled concrete containment area, or are of a double-walled construction. Spills could occur from a tank rupture (unlikely), from leaks at pipe joints, or from refilling accidents (more likely). All areas where petroleum products are stored or handled will have spill kits (clearly labelled) located in highly visible areas.

Gasoline (stored in 205 L barrels), used for snowmobiles and other small gasoline-powered equipment, will mainly be stored within the Fuel Farm. Portable gasoline containers (jerry can with < 20L capacity) will be used to temporarily store the gasoline outside of the Fuel Farm. Lubricants are stored in bulk (205 L barrels) at the Fuel Farm and used principally at the truck shop. Small spills will be cleaned up immediately using spill kits or on-hand absorbents. Contaminated absorbents are placed in containers, such as empty 205 L barrels or waste oil cubes. They will be temporarily stored with other hazardous wastes and disposed of as described in the Jericho Waste Management Plan (EBA 2011j).

Ethylene glycol (stored in 205 L barrels) will also be used at the truck shop, and the barrels will be stored in a silled area. Large spills will be pumped back into barrels for reuse. Small spills are absorbed with absorbent, stored with other hazardous wastes in a designated area at the mine. The details of the hazardous waste handling, storage, and disposal are described in the Jericho Waste Management Plan (EBA 2011j).

Soil impacted by light petroleum products such as gasoline, diesel, and jet fuel will be treated in the landfarm. The details of the treatment for hydrocarbon contaminated soils are described in the Jericho Landfarm Management Plan (EBA 2011f). Soil impacted by heavy petroleum products (lubricant and transmission oil) or other hazardous fluid (e.g., glycol) will be temporally stored in a hazardous waste storage area at the mine, and then transferred for off-site disposal. Details of the handling and disposal of the heavy petroleum products impacted soils are described in the Jericho Waste Management Plan (EBA 2011j).

5.1.2 Explosives

No explosives are stored on site during care and maintenance activities. Prior to commencing mining operations, the quantity and location of the explosives will be specified in an updated CMP.

5.1.3 Slaked Lime

Slaked lime is stored at the diamond plant in a silled area. Any spills will be isolated within the plant and will be cleaned up immediately by plant personnel wearing appropriate PPE. During the future operation phase, the slaked lime is reused if feasible or disposed of as hazardous waste.

5.1.4 Laboratory Chemicals

Small quantities (see Table 6) of acids (nitric, hydrochloric, and sulphuric), sodium hydroxide, and potassium nitrate are stored within a fume cupboard in the lab. Chemicals will only be handled by qualified laboratory personnel. Any spills of the chemicals will be cleaned up as per specific, product-dependent procedures (see Figures 4 to 13, Appendix A, and Appendix B.)

5.2 Quantity Estimation of Released Materials

Estimated quantities of released products are determined by the size of containers. As summarized in Table 7, the capacity of the container sets the limit of maximum spill volumes for a single container leak or failure.

5.3 Spill Reporting

The following reporting procedure will be followed when a spill of any size is discovered:

- The person first observing the spill must report the spill to the supervisor of the area. The responsible supervisor will initiate appropriate spill control and cleanup immediately. Meantime, the supervisor will inform the incident to the Site Manager.
- If the spill is of reportable size, the Site Manager will report the spill to the NT/NU 24-hour spill line (listed in Table 3). A Nunavut Spill Report Form will be completed and filed by the Site Manager. A copy of the NT-NU Spill Report Form is included in Appendix D.

Table 8 summaries spilled quantities that must be reported under the *Consolidation of Spill Contingency Planning and Reporting Regulations*, (GNWT 1998, applicable in Nunavut) and the *Guidelines for Spill Contingency Planning* (INAC 2007). The TDG Class is updated based on the *TDG Regulations* (2008).

Table 8 Spill Reporting Quantities

Substance	TDG Class	Reportable Amount
Explosives	1	Any amount
Compressed gas (flammable)	2.1	Any amount of gas from containers with a capacity greater than 100 L
Compressed gas (non-corrosive, non flammable)	2.2	Any amount of gas from containers with a capacity greater than 100 L

Table 8 Spill Reporting Quantities

Substance	TDG Class	Reportable Amount
Compressed gas (toxic)	2.3	Any amount
Compressed gas (corrosive)	2.4	Any amount
Flammable liquid	3	100 L
Flammable solid	4.1	25 kg
Spontaneously combustible solids	4.2	25 kg
Water reactant solids	4.3	25 kg
Oxidizing substances	5.1	50 L or 50 kg
Organic Peroxides	5.2	1 L or 1 kg
Poisonous substances	6.1	5 L or 5 kg
Infectious substances	6.2	Any amount
Radioactive	7	Any amount
Corrosive substances	8	5 L or 5 kg
Miscellaneous products or substances excluding PCB mixtures	9.1	50 L or 50 kg
PCB mixtures of 5 or more parts per million	9.1	0.5 L or 0.5 kg
Environmentally hazardous	9.2	1 L or 1 kg
Dangerous wastes	9.3	5 L or 5 kg
None	None	Any amount

A log will be kept for all spills (regardless of volume) and will be available upon request during inspections by the Water Resource Officer, INAC. A copy of the log for the previous month will be included in monthly reports to NWB, INAC, and KIA.

5.4 Petroleum Product Spill and Cleanup

5.4.1 General

The first priority when a spill occurs is safety — the safety of the immediate responder and others working in the area. Once it is safe to do so, the responder should make every effort to stop and/or control and contain the spill. Petroleum spills within contained areas can be cleaned up as personnel are available. In other areas, advice from the Environment Manager may be required depending on the scale of the spill and environmental sensitivity of the incident area.

5.4.2 Spills on Waterbodies

Direct petroleum products spill on waterbodies are very unlikely at Jericho because:

- Bulk fuel is delivered during winter when water surfaces are frozen;
- Fuel is delivered by contractor's truck to the fuel tanks when the winter road extends to Jericho;
- The fuel farm is behind a lined berm; and
- Fuel transfer operations at the mine site are away from waterbodies.

In the event of a spill on the winter road, if the spill occurred near the facility, or assistance is requested by the winter road Spill Coordinator, all assistance possible would be provided by Jericho Mine personnel.

5.4.2.1 Equipment and Supplies

Some, or all, of the following equipment are available, either through the fuel supply contractor or at Jericho:

- Booms for containment of oil on water;
- Hand tools as appropriate for clean up; and
- Sorbent materials of sufficient quantity to absorb the petroleum product.

5.4.2.2 Spill Response

Cleanup will involve water contained within the containment booms, lake shoreline or stream bank. Cleanup of water and materials contained within booms should not result in the spread of oil pollution outside the containment zone. The oil-contaminated absorbent materials will be shipped for off site disposal. The water sample will be submitted to an accredited laboratory for analysis for benzene, toluene, ethylbenzene, and xylenes (BTEX), and petroleum hydrocarbons (PHCs) F1 through F4. The analytical results of BTEX will be compared with the *Canadian Water Quality Guidelines for the Protection of Aquatic Life* (CCME, 2007b). Since no federal water quality guidelines for PHCs F1 to F4 have been developed, the *Ontario Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (ON-MOE, 2009) will be adopted. Impound water meeting the applicable discharge criteria will be pumped to the Processed Kimberlite Containment Area (PKCA). Water that exceeds criteria will be treated by a portable hydrocarbon-contaminated water treatment unit prior to pumping to the PKCA. The details of the treatment unit are described in the Jericho Landfarm Management Plan (EBA 2001j).

Shoreline cleanup can be efficiently completed with small teams equipped with hand equipment: shovels, buckets, and portable burners. The most important factor for shoreline cleanup decisions is identifying the coastal landform, beach type, and shoreline processes. The procedures in Table 9 are applicable to Jericho.

Table 9 Recommended Shoreline Petroleum Product Cleanup Procedures

Shoreline	Manual Removal	Mechanical Removal	Burning	Chemical Dispersants (1)	Mixing	Sorbents (2)
Gravel	Recommended	Recommended	Applicable	Applicable	Applicable	Applicable
Sand	Recommended	Recommended	Applicable	Applicable	Applicable	Not Applicable
Muskeg	Recommended	Not recommended	Not applicable	Not applicable	Not applicable	Not applicable
Rock	Recommended	Not recommended	Not applicable	Not applicable	Not applicable	Not applicable

Note:
1. Use of chemical dispersants along shorelines requires government permission.
2. Sorbents should only be used as a final touch up during cleanup operations.

Options for Removal:

Manual Removal

- Use small teams of people with buckets and shovels.
- Attempt to cause the least impact on the shoreline.
- Recommended using sand and gravel beaches.

Mechanical Removal

- Applicable to sandy beaches; not recommended for cobble or boulder beaches.
- Use front-end loaders.
- Carefully control heavy equipment; excessive material removal may disrupt normal beach processes.

Burning

- Can be effective cleanup method on substrates where most petroleum remains on the surface.
- Slick thicknesses must be 2 mm to 3 mm and the slick relatively fresh.
- Burning is not necessarily a cleanup technique, but rather a stabilizing factor (i.e., the toxic light ends are burned, leaving a heavy residue).
- Can cause air pollution and enables various components of the oil to penetrate into substrates other than ice as burning progresses.
- This option is not desirable and would only be considered once all other options had been exhausted and would require regulatory approval.

Chemical Dispersants

- Chemical dispersant use requires government approval and detailed plans for use.
- The decision to use dispersants will likely have to be made on site by government regulators.

Mixing

- Mixing the polluted surface sediments with rakes and harrows will increase weathering processes and accelerate the natural biodegradation process. This method is most effective with low viscosity oils that contain a high proportion of volatile components (e.g., diesel).

Sorbents

- Used with some success on gravel beaches and mud flats.
- Include natural organic sorbents (peat moss, straw, hay, sawdust), mineral based sorbents (vermiculite, volcanic ash, perlite), and synthetic organic sorbents (foam, polystyrene, polyester, rubber).

5.4.3 Spills on Land

5.4.3.1 Small Spills

Small petroleum product spills typically occur during refuelling of vehicles or equipment, vehicle accidents, and spill of lubricant oil or hydraulic fluid. The small spills appear as hydrocarbon stains with no noticeable overland flow or with hydrocarbon flows that can be contained by spill sorbent. The control and clean-up procedures are:

- If the spill occurs on concrete surfaced areas, hydrocarbon products should be cleaned up using sorbent to soak up the spill. The sorbent can be incinerated on site or disposed of as a hazardous waste. Final cleanups are with solvent such as Varsol™ and sorbent.
- If the spill occurs on soil or snow, soil should be excavated to 10 cm below the depth that no visual hydrocarbon stains can be found. Soil or snow contaminated by fuel (gasoline, diesel, and jet fuel) should be placed in the landfarm at the mine. The soil or snow contaminated by lubricant oil or hydraulic fluid should be excavated and temporarily stored at the site with other hazardous materials for off-site disposal.
- If the spill occurs on rock surface, the stained rock should be placed into the waste rock pile. Due to the limited adsorbing surface of the stained rock, no hydrocarbon leaching is anticipated from the waste rock pile. PHC parameters will be analyzed during the annual seepage survey at the waste rock pile containing hydrocarbon-stained rock.

5.4.3.2 Large spills

A large spill refers to the leaking or rupture of the bulk fuel tanks in the Fuel Farm, where continuous overland flow of the petroleum product may occur. Immediate containment of the spills is the primary strategy of controlling large spills. The containment method used may entirely depend on circumstances and materials. It is achieved by using one or more of:

- Dyking;
- Trenching; and
- Ditches and small streams;

Dyking

- Use commercially available units or soil.
- Use construction equipment as appropriate.
- If flammable products are handled, take care to prevent ignition from electrical components and moving parts of equipment.
- Construct the dykes a safe distance away from the leading edge of a flammable product.
- Aim to refine the dyke construction, as circumstances permit, e.g., by increasing the amount of material in a dyke, adding an impermeable layer (like geomembrane), and constructing secondary barriers.

- Once the product is contained, implement immediate procedures for recovery.

Trenching

- The method of construction and maintenance of trenches depends on soil porosity and product solubility, along with other parameters.
- The most effective method of preventing diesel oil permeating a trench bottom is to allow a certain amount of water to enter the trench.
- If water is not available, an alternative is to totally line the trench.
- If liner material is not available, trenches can be lined with absorbent booms.
- Interceptor trenches and dykes may still be useful for non-soluble products and those with a relative density greater than water, but effectiveness is significantly reduced.
- Once trenches are constructed, monitoring is required to prevent overtopping.

Ditches

- Spills may collect in pre-constructed ditches. In such circumstances, the primary aim is to control movement of product along the ditch, without hindering the movement of water. This is accomplished by the construction of dams or weir-type arrangements at strategic points.

Once the petroleum product spills are controlled and possibly recovered, the temporary containment structure should be demolished, and the snow under and near the spill-affected area should be excavated to the landfarm or treated in situ. A qualified environmental engineer/scientist should be retained to conduct a proper environmental site assessment and to supervise the soil excavation or in situ treatment.

5.4.4 Spills on Ice and Snow

As described in Section 5.4.2, bulk fuel is mainly transported to the mine via winter road. Major spills may occur due to a truck accident or during pumping fuel from the truck to the bulk fuel tank:

- Spills on ice near or within Jericho: cleanup is coordinated by the mine and a spill coordinator appointed by the mine.
- Spills distant from Jericho: cleanup would be coordinated by the winter road Spill Coordinator. Mine personnel will provide all assistance requested and ensure the spill is adequately cleaned up.

5.4.4.1 Spill Response

For the on-ice/snow spills at the mine, the following response procedures should be implemented:

- Collect petroleum contaminated ice/snow and dispose at the Jericho landfarm.
- Melted ice/snow should be treated in the hydrocarbon contaminated water treatment unit (see Section 5.4.2) before discharging into the PKCA.

A recognized stabilization procedure on ice is burning and would be considered pursuant to INAC and Environment Canada for approval.

5.4.5 Spills Involving Drums

Any drums that contain hazardous materials require a safety mark to be applied. These marks are dictated by Canadian statutes and are designed to indicate the hazardous nature of the drum contents. Both *TDG Regulation* and WHMIS may be affixed.

Drum cache locations are clearly marked with stakes at the mine site making them visible throughout the year. Most drum caches during operations are small (less than 20 drums). Larger caches are inspected daily; smaller caches are inspected weekly. An inspection log will be available for review by the Inspector.

5.4.5.1 Spill Prevention

Large drum caches would be kept within a bermed area within the Fuel Farm or the contaminated waste storage area. Caches are protected from collision, and are routinely inspected.

5.4.5.2 Spill Response

The following emergency response procedure should be implemented:

- Approach the spill site and clearly determine the contents of each drum: note which drums are leaking. If the shipping document is available, try to compare it to the drums.
- Consult appropriate technical data (MSDS) to assess the potential for reactivity (this should be done by all employees handling the specific chemicals prior to an incident).
- Re-enter the site and stabilize any leaking units by repositioning if possible. That is, if a drum is holed and the hole is at ground level, attempt to rotate it until the hole is adjacent to the vapour space.

5.4.5.3 Temporary Repair

Several alternatives for temporary repair are available:

- Transfer the contents of the damaged drum to an intact drum.
- Patch the damaged drum and overpack for transfer to a site where the drum contents can be handled. Where drum repair is attempted, one of several commercially available kits designed specifically for these techniques are used. Additionally, various types of chemical patch kits are available. These either require the mixing of two chemicals to form a malleable material that sets hard, or a single malleable material that sets hard upon exposure to air.

5.4.5.4 Assessment and Cleanup

The spill impacted area should be properly assessed and cleanup as described in Section 5.4.3.

5.4.6 Spills on Wetlands

During the open water season, small areas of wetland are present along the airstrip road. Spills of petroleum products on wetlands are unlikely due to the limited exposure of wetlands to potential spill areas.

Spills on wetlands or muskeg are similar to both land and water spills.

5.4.6.1 Spill Response

- Spills during the winter resupply would be treated similarly to spills on snow or ice. The contaminated snow or ice would be removed and placed in the landfarm or shipped for off-site disposal.
- Treatment of spills during the open water season would depend on the amount of standing water (if any) present in the wetland. Sorbent booms may be deployed. If running water is present, a coffer dam may need to be built. Contaminated water would be treated as discussed in Section 5.4.2 and contaminated soil as discussed in Section 5.4.3.

5.4.7 Temporary Storage of Fuel Spill

Drums

- Drums can be used for small volumes of product.
- The spill coordinator will ensure that drums to be used for storage are compatible with the recovered product.
- To use, the drum lid must be removed, or commercial drums with removable lids kept on site. Such drums, either plastic or metal, are standard parts of commercially available spill kits.

Lugger Boxes

- Lugger boxes are available from waste management companies.
- Lugger boxes are frequently used to transport drums that are physically altered or damaged.

Portable Tanks

Portable tanks vary from 1,900 L to 38,000 L (500 to 10,000 gallons) capacity. Construction is of either bladder or frame and liner. When using portable tanks, the user will:

- Never exceed the tank's rated capacity.
- Ensure that the liner material is compatible with the product to be recovered.
- Remove stones, sticks, and any other protuberances from the area where the tank are sited to avoid the risk of tank puncture.
- Keep one person at the tank at all times to monitor the liquid level.

5.5 Processed Kimberlite Spills and Remediation

This plan is confined to a discussion of emergency response to a dam failure and risk assessment. The Jericho Emergency Preparedness and Response Plan for Dam Emergencies (EP-RP, EBA 2011q) contains further information on dam safety and emergency response. An Operations, Maintenance and Surveillance Manual (EBA 2011r) specific to the Jericho PKCA has been prepared and is consistent with recommendations presented in the Canadian Dam Association – Dam Safety Guidelines (CDA 2007).

5.5.1 General

Spills of processed kimberlite as the result of a dam failure are a hazardous substance spill special case. In the event of a dam failure, there is the risk that water (processed kimberlite supernatant) or fine processed kimberlite (FPK), or both, could be released. The volume of FPK released would depend on the stage of mining, the time of year when the dam failure occurred as well as the extent of the failure.

- Failure of the West Dam may result in the release of impounded water to the receiving environment.
- Failure of the East or Southeast dams may result in FPK, and possibly supernatant water, inundating adjacent land areas.
- Failure of the divider dyke may result in FPK flowing into the west cell of the PKCA without release to the environment.

Limited water would be released from any but a failure of the West Dam, as the other dams have solids spiggotted against the upstream face. If a sufficient volume of water is released due to the West Dam failure, water from this lake would be released into Stream C3 where it would flow to Lake C3.

A spill of FPK to the east may inundate the area immediately east of the dam and may reach the west side of unnamed lake and possibly Ash Lake. A failure of the Southeast Dam would similar effects. The potential dam emergency inundation areas are shown in Figure 14.

5.5.2 Spill Response

Detailed information on dam emergencies and procedures can be found in the Jericho EP-RP (EBA 2011q). Once the dam emergency is over and repairs and remediation are underway, post-remediation monitoring should commence as described in the following section.

5.5.3 Post Remediation Monitoring

Water quality monitoring is required subsequent to a spill to delimit the extent of environmental impacts if water bodies are potentially affected by the spill. The following procedure is carried out:

- Immediately following PK slurry or supernatant water release, collect water samples in downstream water bodies immediately below the dam break or below any coffer dams constructed to contain slurry or water.
- Collect water samples at 100 m intervals to a minimum of twice the distance downstream the contaminants are considered to have travelled to measure the suite of chemical analyses required by the water licence.

- Collect a sample of water from the first fish-bearing waterbody downstream for acute toxicity testing (rainbow trout and Daphnia).
- Immediately arrange for shipment of samples to qualified laboratories. Ensure chain of custody forms are used to track sample shipments. Request the laboratories to conduct tests on a priority basis.
- Repeat the sampling weekly, extending downstream, if required, to where background concentrations are reached. Continue sampling until the mine water licence discharge criteria are met at the closest sampling point to the dam break.
- If less than 100% survival results from toxicity testing, collect additional water samples for toxicity testing downstream from the first fish-bearing water body as appropriate and in consultation with NWB.
- Collect daily turbidity readings downstream of the spill containment structure (cofferdam or natural topography).
- Take secchi disk readings daily if visible suspended sediment is present in lakes.
- If fish-bearing water bodies are potentially affected, at the first opportunity, conduct a survey of impacts to fish and fish habitat. The survey should be conducted by a qualified fisheries biologist and would have to be undertaken during the open water season.
- Wildlife, except rodents, is unlikely to be directly affected by a PK slurry or water release because birds and larger mammals have the ability to escape any inundation. Some rodents could be smothered by PK slurry and ground-nesting birds' nests could also be smothered. If wildlife habitats are visibly affected, a wildlife biologist should be engaged to provide the mine with an independent assessment.

5.5.4 Raw Wastewater Loss

The domestic wastewater is treated by the Wastewater Treatment Plant before being discharged into the PKCA. Sewage lines from various areas in the accommodation complex are connected to common routing point and then pumped to the treatment plant in a heat traced, insulated line. Line breaks could occur anywhere in the system, but loss can be stopped with shutoff valves throughout the system and alternate facilities used until repairs are completed. A break in one of the sewage treatment plant tanks would result in loss of more or less treated sewage to the floor of the plant and to the crushed rock pad the plant is founded on. Any break in the outfall pipe from the sewage treatment plant would result in sewage flowing by gravity to the PKCA.

A malfunction could also occur with the sewage treatment plant and raw sewage would then have to be pumped directly to the PKCA until repairs are completed.

5.6 Other Products

Relatively small quantities of other products are present at Jericho. Chemical handlers should be familiar with procedures listed on MSDS for spill cleanup. Following a spill incident, a spill report form will be completed and filed immediately by the Site Manager.

5.7 Decontamination Procedures

A decision about whether the spill warrants decontamination procedures is based on the following questions. If the answer is yes to one or all of the questions, decontamination procedures will be followed.

- Is the product at Immediately Dangerous to Life and Health (IDLH) concentration?
- Does the product constitute a Hazardous Waste? Potentially any substance covered under the TDG Regulations (e.g., diesel or gasoline), if spilled, could be considered a hazardous waste.
- Would spread of even a small amount of the product lead to health or environmental risks?

5.8 Contaminant and Debris Disposal

5.8.1 Storage of Contaminants

Soil, snow, or ice that is contaminated by the light petroleum products (diesel, gasoline and jet fuel) will be placed and treated in the landfarm of the mine. The landfarm is a lined, hydrocarbon-contaminated soil containment facility as described in the Jericho Preliminary Landfarm Design Plan (EBA 2011o). Under controlled ventilation, moisture, and nutrients environment, hydrocarbon in the soil can be ventilated and biodegraded. As described in the Jericho Landfarm Management Plan (EBA 2011j), the landfarm will be sited and constructed in 2011. Since heavier hydrocarbon products (lubricant oil and hydraulic fluid) and other chemical products do not easily biodegrade, soil, snow, or ice contaminated by these materials will be temporally stored as hazardous waste and further shipped for off-site disposal. The detailed procedures of handling, storage and shipment of hazardous materials are described in the Jericho Waste Management Plan (EBA 2011j).

Any contaminated sorbent material on site are collected in garbage bags, used oil cubes, or other suitable container will be stored and disposed as hazardous waste.

5.8.2 Decontamination of Equipment

The most likely contaminant requiring equipment decontamination would be PHC, but any hazardous substance contamination will need to be addressed.

The procedures of equipment decontamination are as follows:

- All equipment used in handling an incident must be properly decontaminated and passed as fit for reuse prior to final storage.
- The methods of cleaning are dictated by the contaminant but could include solvent washing, detergent washing, rinsing, drying, and finally wipe testing.
- All decontamination must be undertaken in a containment area with access restricted to personnel directly involved in decontamination. Care must be taken to ensure contamination is not accidentally transported by personnel outside the decontamination zone. Measures will depend on the contaminant and the extent of contamination, but could include clothes changes and boot solvent washes. Contaminated clothing may be washed or discarded as appropriate.

- All decontaminant personnel must be equipped with PPE appropriate to the contaminant being handled.
- All equipment that cannot be properly cleaned must be disposed of as contaminated material, and should be containerized and shipped off site with other hazardous waste.
- The wash water should be treated in the hydrocarbon-contaminated water treatment unit, if the contaminant is petroleum, and discharge to the PKCA.
- Dispose of solvents and other cleaning agents as contaminated material.
- Damaged equipment must be decontaminated prior to disposal.

6.0 HAZARDOUS MATERIALS MANAGEMENT PLAN

6.1 Purpose and Scope of the Plan

The purpose of this plan is to provide a consolidated source of information on the safe and environmentally sound storage and handling of the major hazardous products used at Jericho. The Hazardous Materials Management Plan provides instruction on the handling and storage of hazardous materials used at Jericho together with guidelines for inventory management and records keeping.

Hazardous materials handling practices at Jericho comply with existing regulations to prevent, to the extent possible, both accidental release of these substances to the environment and accidents resulting from mishandling or mishap. Further, hazardous materials handling practices focus on prevention through inspection of facilities by Shear, periodic drills to test systems, and a program of review and continual improvement combined with training and refresher courses for all employees.

All personnel are required to report materials management concerns to their supervisors, who may notify the Environment Department and senior site management. All personnel are encouraged to participate in procedure improvements and to bring ideas and suggestions to the Environment Department, so that they may be reviewed and incorporated into procedure revisions as appropriate.

6.2 Hazardous Substances Inventory

Table 6 in Section 5.0 provides an inventory of major chemicals at Jericho under the previous ownership. Further chemical and physical properties and toxicological information of the chemicals are contained in the MSDS in Appendix B. Chemical handlers must be familiar with the general toxicological properties of substances.

The human health effects of chemicals handled at Jericho are discussed in appropriate sections of the MSDS and are part of mandatory WHMIS training. Appropriate PPE and procedures in handling hazardous substances are essential to prevent accidental exposure that may have short- or long-term health effects.

6.3 Inspection and Safe Handling Procedures

The routine inspection is key to accident and emergency prevention and in handling hazardous substances. This section discusses inspection procedures for fuels and lubricants, fire-fighting equipment, and

emergency response equipment. Dam and dyke inspections are briefly summarized here and are detailed in the Jericho General Monitoring Plan (EBA 2011d).

6.3.1 Fuels and Lubricants

The Site Manager is ultimately responsible for petroleum storage inspection at Jericho. The Site Manager, or designate, will coordinate with the plant supervisor, site supervisor and the catering manager with respect to any fuels or lubricants used in their areas of responsibility.

Fuels and lubricants that will be stored and handled at Jericho and their storage locations are listed Table 7. Potential impacts from petroleum products if mishandled include fire, explosion (volatile products – diesel, jet fuel, gasoline, propane), and water and soil contamination.

Inspection schedule and procedure for petroleum storage containers is provided in Table 10.

Table 10 Inspection Schedule for Petroleum Storage Sites

Area	Frequency	Actions
Fuel Tanks	Quarterly by the plant manager; annually by Shear Environment Department	Repair any deficiencies and report promptly. Inspections are reported and filed with the site or plant supervisor and the Environment Department.
Diesel Generator Building	Monthly by the plant supervisor as part of internal environmental audit	Inspections are reported and filed as above.
Other Fuelling Stations	Weekly by the site supervisor, or designate, as part of internal environmental audit	Inspections are reported and filed as above.
Spill Kits	Quarterly by the plant supervisor or designate; annually under Shear's Environment Manager	Inspections are reported and filed as above.
Other hazardous materials storage	Monthly by the plant supervisor when materials are on site	Inspections are reported and filed as above.

All inspections are logged with the date and time of inspection, facility inspected, and the name of the person making the inspection.

Any accidental damage to containment structures will be inspected immediately; and appropriate repairs will be undertaken. The extent of damage will be reported in writing to the site and plant supervisor, or designate, as well as remedial repairs effected together with the date of repairs and any follow up inspection.

6.3.2 Safe Handling Procedures

Table 11 lists safe handling procedures for the products listed in Table 6. Details of the safe handling procedures are described in the MSDS of the individual chemical.

Table 11 Safe Handling Procedures for Hazardous Products

Product	Handling Procedures
Citric Acid	Use NIOSH-approved chemical respirator with dust and mist filter while handling crystalline material and concentrated solutions. Ventilate work area sufficiently to control dust. Wear standard work gloves and safety glasses. Avoid contact with skin, eyes, clothing and inhalation. Store in a dry area.
Diesel	Do not get in eyes, on skin or on clothing. Avoid breathing vapours, mist, fume or dust. Do not swallow. May be aspirated into lungs. Wear protective equipment and/or garments if exposure conditions warrant. Wash thoroughly after handling. Launder contaminated clothing before reuse. Use with adequate ventilation. Keep away from heat, sparks, and flames. Store in a well-ventilated area. Store in a closed container. Bond and ground during transfer.
Ethylene Glycol	Use adequate ventilation, wear protective gloves and chemical safety goggles if possibility of eye contact. Keep in tightly closed container, stored in a cool, dry, ventilated area. Separate from acids and oxidizing materials. Containers of this product may be hazardous when empty since they retain product residues (vapours; liquids).
Hydrochloric Acid	Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat, water, and incompatible materials. Do not wash out container and use it for other purposes. When diluting, the acid should always be added slowly to water and in small amounts. Never use hot water and never add water to the acid. Water added to acid can cause uncontrolled boiling and splashing. When opening metal containers, use non-sparking tools because of the possibility of hydrogen gas being present. Containers of this material may be hazardous when empty since they retain product residues (vapours, liquid); observe all warnings and precautions listed for the product.
Nitric Acid	Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials such as organics. Highly corrosive. Do not add any other material to the container. Do not wash down the drain. Do not breathe gas/fumes/vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from direct sunlight or strong incandescent light. Keep container tightly closed and dry. Manipulate under an adequate fume hood. Avoid contact with a combustible material (wood, paper, oil, clothing). Empty containers may contain a hazardous residue. Handle and open container with care. Take off immediately all contaminated clothing. This product must be manipulated by qualified personnel. Do not get in eyes, on skin, or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking and food consumption while handling. In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible.). Do not allow water to get inside container because of violent reaction. May catch fire in contact with combustible materials such as organics. May develop pressure; vent periodically.
Jet Fuel (Jet A)	Use impervious gloves; wear splash-proof, dust-resistant SAF goggles. Wash thoroughly after handling; wash contaminated clothing.
Jet Fuel (Jet B)	Avoid skin contact. Launder contaminated clothing before reuse. Store in a flammable liquids area. Store away from heat, ignition sources and open flames. Jet fuel will burn vigorously and can explode with the right fuel-air mixture (between LEL and UEL).
Magnaflox 156, or equiv. Flocculent	Use with adequate ventilation, wear chemical resistant gloves and safety goggles. Store in a cool, dry place. Keep container tightly closed when not in use.

Table 11 Safe Handling Procedures for Hazardous Products

Product	Handling Procedures
Motor Oil / Hydraulic Oil / Transmission Fluid	Wear protective clothing and impervious gloves when working with used oils and transmission fluids.
Petroleum Grease	Minimize breathing vapour, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water. To prevent fire or explosion risk from static accumulation and discharge, effectively ground product transfer system in accordance with the National Fire Code. Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants.
Potassium Nitrate	Use NIOSH/MSHA-approved dust type respirator, impervious butyl or rubber gloves and goggles. Use coveralls and impervious boots. Wash thoroughly after handling. Avoid prolonged or repeated contact with skin. Avoid contact with eyes. Stow away from reducing agents and liquids of low flash points.
Propane	Protect the valve from any damage. Wear loose fitting protective gloves and safety glasses or goggles. Avoid skin contact as it can cause frostbite. Wash thoroughly after handling. Do not drag, drop, roll or slide or allow the cylinder to bang against other objects.
Soda Ash	Use dust respirators when dust excessive, plastic coated gloves and goggles. If dusty use an exhaust fan.
Sodium Hydroxide	Store in a dry place indoors. Keep containers closed & labelled correctly when not in use. Wash thoroughly after handling. When handling, wear safety goggles & face shield, rubber gloves, rubber boots, rubber apron, polyvinyl chloride clothing and plastic hard hat. Wear NIOSH/MSHA-approved, dust type respirator, where dust or mists may be generated. Never touch eyes or face with hands or gloves that may be contaminated with Caustic Soda.
Unleaded Gasoline	Avoid skin contact. Launder contaminated clothing before reuse. Store in a flammable liquids area. Store away from heat, ignition sources and open flames. Bond and ground during transfer. Gasoline will burn vigorously and can explode with the right fuel-air mixture (between LEL and UEL).

Filling Petroleum Products

A contract supplier will fill fuel tanks in the main fuel farm. Fuel transfer will take place inside the bermed area; general procedures to be followed are presented below. For fuelling station and power house tanks, similar procedures are followed:

1. Before fuel transfer, verify that:
   - All fuel transfer hoses are connected properly and couplings are tight.
   - Transfer hoses are not obviously damaged.
   - Fuel transfer personnel are familiar with procedures.
   - For fuelling stations and power house, personnel are located at both the fuel truck and fuel transfer tank(s) and have the ability to shut off fuel flow manually, and a means of communication is established between the two people transferring fuel. A high liquid level shutoff device can be

substituted for the person at the delivery tank, in which case operation of the shutoff should be verified each time it is used.

2. Transfer fuel as per established procedures of the fuelling contractor.
3. Contractor (or mine employee in the case of fuelling station tanks) will report any accidents or spills immediately to the Site Manager; spills will be logged as previously discussed.

Used Petroleum Products

All used petroleum products are collected in tanks or barrels marked "Waste Oil" and disposed of under the direction of the Site Manager. Empty petroleum containers will, unless otherwise directed, be stored on site in the Hazardous Waste Transfer Area and returned to the supplier on backhauls during the winter resupply.

Jericho's hazardous waste generator number is NUG100017.

Procedures for Handling Used Product Containers

Many chemical containers are not safe to dispose of directly and must be recycled, or require handling precautions identical to full containers. The procedure for handling used chemical containers is described in the Jericho Waste Management Plan (EBA 2011j). The information is supplemental to training given to chemical handlers. Chemical handlers must be familiar with the specific safe handling and storage procedures provided by manufacturers in MSDS.

Small Volume Hazardous Wastes

Table 12 lists expected small volume hazardous wastes, their temporary storage location and ultimate disposal.

Table 12 Small Volume Hazardous Waste Management

Waste	Temporary Storage	Disposal
Used paint	Hazardous wastes compound, segregated on pallets	Backhaul to a licensed disposal contractor
Use oil filters/grease cartridges	Hazardous wastes compound, in steel drum(s) segregated on pallets	Backhaul to a licensed disposal contractor, or return to supplier where agreements exist
Used rags and sorbents	Hazardous wastes compound, in steel drum(s) segregated on pallets	Backhaul to a licensed disposal contractor

6.4 Inventory Management

Bulk materials, including those products discussed in this plan, will be transported to the Jericho site over the Tibbitt to Contwoyto Winter Road as required, typically yearly. The division supervisors will reconcile total amounts received against amounts ordered. The Site Manager will regulate use of the materials.

6.4.1 Fuels and Lubricants

Fuel and gasoline use are automatically metered as they are distributed from bulk tanks. The metered volumes are summarized weekly and reconciled against manual dipping of the tanks. The exception is use for power generators where weekly fuel use is recorded.

Jet fuel B is dispensed from 205 L drums as required by aircraft personnel. Use and on-hand volumes are reconciled monthly.

Lubricant and other petroleum products are inventoried monthly.

6.4.2 Processing Plant Consumables

Processing plant consumables are reconciled on receipt. A consumables sheet is filled by the senior operator and provided to the Site Manager if any are consumed.

6.5 Records

6.5.1 Fuels and Lubricants

Records of fuels and lubricants are required by the CCME and the Fire Marshall (under the *National Fire Code*). Records are kept under the supervision of Site Supervisor in consultation with the Site Manager, for the following:

- Reconciled bulk inventory from winter resupply;
- Weekly use summaries;
- Weekly reconciliation for each storage tank;
- Overfill alarm tests;
- Pressure tests (if applicable);
- Inspections and maintenance checks of storage tank system, piping and delivery system;
- Any alteration to the system;
- Reports of leaks or losses;
- Reports of spill responses; and
- Records of training.

6.5.2 Processing Plant Consumables

The plant supervisor is responsible for reconciling winter resupply inventory. The plant supervisor keeps records of use if any are consumed. Weekly and monthly summaries are provided to the Site Manager for record keeping.

7.0 PREPAREDNESS AND TRAINING

7.1 Levels of Training

Two levels of training are given to Jericho employees, depending on their role in emergency response:

- Emergency responder training; and
- Emergency awareness and preparedness training for all employees.

7.1.1 Emergency Responders

Emergency responder training is provided for first-aid personnel, for the mine rescue team, and for designated employees. Training sessions are held as required by the *NWT Mine Health and Safety Act and Regulations*. Training involves fire fighting, mine rescue, first aid, and spill response.

Emergency responder training is specific to their area of responsibility. Industrial first aid certification is a requisite and confined space entry certification may be required. Emergency responders obtain hands on training in use of fire suppression equipment (fire extinguishers, hoses, etc.), correct procedures for safe handling and cleanup of hazardous chemicals used in their work area, and familiarity with MSDS and use of SCBA or air purifying respirators (where appropriate). Mine safety rescue teams meet the requirements of the Nunavut/NWT Mine Health and Safety Regulations as a minimum. Emergency responder training is conducted as required by legislation or, at a minimum, annually. Drills for emergency response teams are also conducted as required by legislation or, at a minimum, semi-annually.

7.1.2 Mine Rescue

During care and maintenance, a formal Mine Rescue Team will not be established.

7.1.3 All Employees

Training for all employees includes:

- Evacuation procedures and routes;
- Alarm systems;
- When to attempt immediate response to an emergency and when to call for help;
- Reporting procedures for personnel;
- Shutdown procedures for equipment and electrical systems;
- Types of potential emergencies;
- Procedures for handling flammable liquids;
- Importance of good housekeeping;
- Importance of safe work habits;
- Procedures for control and cleanup of leaks and spills; and

- Procedures for disposal of waste materials.

Training programs are provided:

- For all new employees;
- When new equipment, materials, or processes are introduced;
- When procedures are updated or revised; and
- When analysis of drill responses by the Environment Department results in a recommendation for refresher training in any or all areas.

Training is provided by a combination of trained, qualified Shear staff and outside training service organizations, as appropriate.

7.1.4 Spill Response Training

A spill response exercise will be conducted when deemed required. The exercise will include:

- A response initiated via the 24-hour paging system.
- A mock spill using a large volume of fresh water (approximately 10,000 L) that is released.
- Emergency Response Team members responding to the spill.
- Mine equipment that is mobilized to contain the spill.
- The spill area will be cleaned and materials disposed of.
- A debriefing conducted post scenario to evaluate the response and identify any shortcomings and required improvements.

8.0 SITE RESTORATION

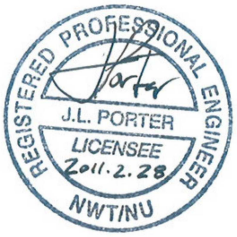
Whether site restoration is required will depend on the spill or other emergency and the substance(s) involved. Therefore, no specific directions are appropriate in this section. If site restoration is an issue, it will be undertaken within the framework of the CCME's Canadian Soil Quality Guidelines. INAC has responsibilities for federal lands within Nunavut, whereas KIA has responsibilities for Inuit Owned Lands. Both agencies would be consulted with respect to appropriate restoration in the event of a spill or emergency. The amount of restoration, if any, will depend on the nature of the spill or emergency. If restoration is required, a remedial action plan would likely be required by the responsible agency. For sites that will likely require restoration, a third-party inspection and restoration by a competent, licensed contractor will be considered. If a spill or fire causes extensive environmental damage, an environmental site assessment may be required.

Minor restoration will include the following:

- Confirm that the site is decontaminated.
- Replace removed contaminated soil with clean fill.
- Top dress the location, available from the topsoil stockpile (as appropriate).

9.0 CLOSURE

EBA, A Tetra Tech Company



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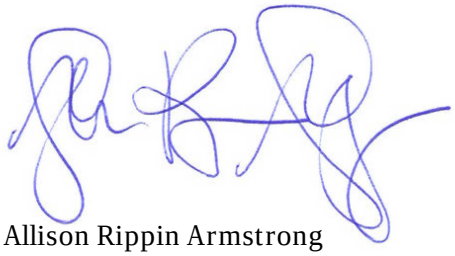
Reviewed by Shear Diamonds Ltd.



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Environment Manager
Shear Diamonds Ltd.

Allison Rippin Armstrong
Director of Environment and Permitting
Shear Diamonds Ltd.

2011 WATER LICENCE RENEWAL DOCUMENTS

Management Plans

EBA, A Tetra Tech Company (EBA), 2011a. Aquatic Effects Monitoring Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011b. Care and Maintenance Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011c. Contingency Management Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011d. General Monitoring Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011e. Interim Closure and Reclamation Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011f. Landfarm Management Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011g. Landfill Management Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011h. Processed Kimberlite Management Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011i. Site Water Management Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011j. Waste Management Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011k. Waste Rock Management Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011l. Wastewater Treatment Management Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

Design Reports

EBA, A Tetra Tech Company (EBA), 2011m. C1 Diversion Construction Summary, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011n. Fuel Storage Containment Facility Design Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011o. Preliminary Landfarm Design Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011p. Preliminary Landfill Design Plan, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

Additional Plans

EBA, A Tetra Tech Company (EBA), 2011q. Operations, Surveillance, and Maintenance Manual, PCKA Dams, Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

EBA, A Tetra Tech Company (EBA), 2011r. Emergency Preparedness and Emergency Response Plan for Dam Emergencies at the Jericho Diamond Mine, Nunavut. Prepared for Shear Diamonds Ltd., February 2011.

REFERENCES

Canadian Council of Ministers of the Environment (CCME) (1999), "Canadian Environmental Quality Guidelines", Canadian Council of Ministers of the Environment, Winnipeg, Manitoba.

Canadian Council of Ministers of the Environment (CCME) (2007a), Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health: Summary Table, updated September 2007. In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

Canadian Council of Ministers of the Environment (CCME), (2007b). Canadian Water Quality Guidelines for the Protection of Aquatic Life: Summary Table, updated December, 2007. In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

Canadian Council of Ministers of the Environment (CCME) (2008). Canada Wide Standards for Petroleum Hydrocarbons (PHC) in Soil: User's Guidance, prepared by O'Connor Associates Environmental Inc. (2001) and Meridian Environmental Inc. (2001, 2007)

Government of Northwest Territories (GNWT), 1998. Consolidation of Regulation R-068-93 – Spill Contingency Planning and Reporting Regulations. Prepared by Manager, Enforcement and Legislative Services, Department of Resources, Wildlife and Economic Development, Government of the Northwest Territories, July 15, 1998. [Online] http://www.gov.nu.ca/env/splanning.pdf

Indian and Northern Affairs Canada (INAC), 2007. Guidelines for Spill Contingency Planning. Prepared by Water Resources Division of INAC, Yellowknife, NT, April 2007.

Manitoba Industrial Accidents Council (MIAC), 1996. Industrial Emergency Response Planning Guide. Issued in September 1996.

National Institute for Occupational Safety and Health. 1995. NIOSH Pocket Guide to Chemical Hazards.

Ontario Ministry of the Environment (ON-MOE), 2008. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, published on July 27, 2009.

Tahera Diamond Corporation (TDC), 2008. Contingency Plan, Jericho Diamond Project. Prepared in April 2008.

FIGURES

APPENDIX A

APPENDIX A EMERGENCY-SPECIFIC PROCEDURES FOR POTENTIAL SPILLS

APPENDIX B

APPENDIX B MATERIAL SAFETY DATA SHEETS OF ON-SITE CHEMICALS

AMERADA HESS -- REGULAR UNLEADED GASOLINE
MATERIAL SAFETY DATA SHEET
NSN: 913000N023616
Manufacturer's CAGE: 4N717
Part No. Indicator: A
Part Number/Trade Name: REGULAR UNLEADED GASOLINE

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General Information

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Company's Name: AMERADA HESS CORP
Company's Street: 1 HESS PLAZA
Company's City: WOODBRIDGE
Company's State: NJ
Company's Country: US
Company's Zip Code: 07095
Company's Emerg Ph #: 800-424-9300(CHEMTREC)
Company's Info Ph #: 201-750-6000
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 13JAN89
Safety Data Review Date: 08JAN92
MSDS Serial Number: BLZXH
Hazard Characteristic Code: F2

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Ingredients/Identity Information

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Proprietary: NO
Ingredient: GASOLINE
Ingredient Sequence Number: 01
Percent: 100
NIOSH (RTECS) Number: LX3300000
CAS Number: 8006-61-9
OSHA PEL: 300 PPM;500 PPM STEL
ACGIH TLV: 300 PPM;500 PPM STEL

Proprietary: NO
Ingredient: TERT-AMYL METHYL ETHER (BLEND OF ING 2&3 FOR A TOTAL OF 15% OF PRODUCT)
Ingredient Sequence Number: 02
Percent: MIX
NIOSH (RTECS) Number: 1007422AM
CAS Number: 994-05-8
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ETHER,TERT-BUTYL METHYL; (METHYL TERT-BUTYL ETHER)

Ingredient Sequence Number: 03
Percent: MIX
NIOSH (RTECS) Number: KNS525000
CAS Number: 1634-04-4
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: TOLUENE
Ingredient Sequence Number: 04
Percent: 6-<3015
NIOSH (RTECS) Number: XS5250000
CAS Number: 108-88-3
OSHA PEL: 200 PPM/150 STEL
ACGIH TLV: 50 PPM; 9293

Proprietary: NO
Ingredient: XYLENE
Ingredient Sequence Number: 05
Percent: 8.5-<15
NIOSH (RTECS) Number: ZE2100000
CAS Number: 1330-20-7
OSHA PEL: 100 PPM;150 PPM STEL
ACGIH TLV: 100 PPM;150 PPM STE

Proprietary: NO
Ingredient: BENZENE
Ingredient Sequence Number: 06
Percent: 0.1-<5
NIOSH (RTECS) Number: CY1400000
CAS Number: 71-43-2
OSHA PEL: 1 PPM; 5 STEL (MFR)
ACGIH TLV: 10 PPM

Proprietary: NO
Ingredient: BENZENE, ETHYL; (ETHYL BENZENE)
Ingredient Sequence Number: 07
Percent: <3
NIOSH (RTECS) Number: DA0700000
CAS Number: 100-41-4
OSHA PEL: 100 PPM;125 PPM STEL
ACGIH TLV: 100 PPM;125 PPM STEL

Proprietary: NO
Ingredient: BENZENE,1,2,4-TRIMETHYL-; (1,2,4-TRIMETHYLBENZENE)
Ingredient Sequence Number: 08
NIOSH (RTECS) Number: DC3325000
CAS Number: 95-63-6

OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: SUPP DATA:IN AIR. HVR/AIR VAP CAN FLOW ALONG SURF TO DISTANT SOURCES OF IGNIT/FLASHBACK. FLOW GASOLINE CAN BE (ING 10)
Ingredient Sequence Number: 09
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 9:IGNITED BY SELF-GENERATED STATIC ELEC. RUNOFF TO SEWERS MAY CREATE FIRE &/OR EXPLOS HAZ.
Ingredient Sequence Number: 10
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: EFTS OF OVEREXP:WILL FATG OLFACTORY SENSES. IMMED DANGER TO HLTH/LIFE IS REPRESENTED BY 2 THOUSANDS(2000)PPM. (ING 12)
Ingredient Sequence Number: 11
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 11:INGEST/INHAL OF LIQ &/OR EXCESS VAP CAN HAVE AN ANESTH EFT, CAUSING VERTIGO, BLURRED VISION, VOMIT & (ING 13)
Ingredient Sequence Number: 12
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 12:CYANOSIS. OVEREXP MAY CAUSE CNS DEPRESSION.
Ingredient Sequence Number: 13
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: SPILL PROC:ACQUATIC LIFE. CAUTION-EVACUATE ALL NON-ESSENTIAL PERS. SPILLED MATL MAY CAUSE SLIPPERY CNDTN. OPEN (ING 15)
Ingredient Sequence Number: 14
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 14:SPILLS MAY EMIT FLAM VAP. APPROACH FROM UPWIND IF POSS. AVOID BRTHG EMITTED VAP. WEAR SCBA IF REQ TO PVNT(ING 16)
Ingredient Sequence Number: 15
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 15:INHAL OF VAPORS.
Ingredient Sequence Number: 16
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: WASTE DISP METH:FLAMMABLE, VAPORS.
Ingredient Sequence Number: 17
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: HNDLG/STOR PREC:BONDED/GROUNDED TO PVNT POTNTL ACCUMULATION OF STATIC ELEC. NO SMOKING IN AREAS OF HNDLG/STOR. (ING 19)
Ingredient Sequence Number: 18
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 18:STOR SHOULD BE TIGHTLY CLSD CONTR IN COOL/DRY/ISOLATED & WELL VENTD AREA AWAY FROM POTNTL SOURCES OF IGNITION.
Ingredient Sequence Number: 19
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: OTHER PREC:REGULAR/FREQUENT BASIS. VENT MUST BE SUFFICIENT TO PVNT ACCUMULATION OF TOX/FLAM CONC OF VAP IN AIR. (ING 21)
Ingredient Sequence Number: 20
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 20:EMPTY CONTR MAY CNTN TOX/FLAM/COMBUST RESIDUE/VAP. DO NOT CUT/GRIND/DRILL/WELD OR REUSE CONTR UNLESS ADEQ(ING 22)
Ingredient Sequence Number: 21
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 21:PRECAUTIONS AGAINST THESE HAZARDS ARE TAKEN.
Ingredient Sequence Number: 22
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: HYGIENE PRACT: UPPWIND OF VAPOR OR MIST RELEASE, SPILL OR LEAK.
Ingredient Sequence Number: 23
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Physical/Chemical Characteristics

Appearance And Odor: CLEAR LIQ W/STRONG AROMATIC HYDROCARBON ODOR. MAY BE DYED CHARACTERISTIC(SUPDAT)
Boiling Point: 85.0F,29.4C
Vapor Pressure (MM Hg/70 F): SUPP DATA
Vapor Density (Air=1): 3.0-4.0
Specific Gravity: 0.76
Evaporation Rate And Ref: 10-11(BUTYL ACETATE=1)
Solubility In Water: SLIGHT
Percent Volatiles By Volume: 100

Fire and Explosion Hazard Data

Flash Point: -40F,-40C
Flash Point Method: TCC
Lower Explosive Limit: 1.4%
Upper Explosive Limit: 7.4%
Extinguishing Media: ANY APPRVD EXTING AGENT FOR CLASS B FIRES/DRY CHEM/ FOAM/CO*2 OR HALON. H*2O IS NOT ORD EFT. HOWEVER, H*2O FOG(SUPP DATA)
Special Fire Fighting Proc: NIOSH/MSHA APPRVD SCBA & FULL PROT EQUIP(FP N). AVOID INHAL OF VAP. H*2O SHOULD BE USED TO KEEP EXPOS CONTR COOL. APPROACH FROM UPWIND IF POSSIBLE.
Unusual Fire And Expl Hazrds: CLASS 1A FLAM LIQ. KEEP AWAY FROM HEAT/ SOURCES OF IGNIT/OXIDIZERS. BURN MAY CAUSE EMISSION OF TOX PROD OF COMBUST.

EMPTY PROD CONTR/VESSELS MAY CNTN (SUPP DATA)

Reactivity Data

Stability: YES
Cond To Avoid (Stability): AVOID HANDLING OR STORING NEAR HEAT, SPARKS OR OPEN FLAME.
Materials To Avoid: OXIDIZING AGENTS. COMBUSTION OF NITRIC AND SULFURIC ACIDS.
Hazardous Decomp Products: CONTACT W/NITRIC & SULFURIC ACIDS WILL FORM NITROCRESOLS THAT CAN DECOMPOSE VIOLENTLY.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT.

Health Hazard Data

LD50-LC50 Mixture: LD50:ORAL(RBT)5 ML/KG
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: ACUTE/CHRONIC:HARMFUL/FATAL IF SWALLOW/ASPIRATED. LONG TERM EXPOS TO VAP HAS CAUSED CANCER IN SOME LAB ANIMALS. INGEST MAY CAUSE GI DISTURB. ASPIR INTO LUNGS MAY CAUSE PNEUM. PRLNG CONT W/SKIN MAY RSLT IN DEFAT/RED/ITCH/INFLAM/CRACK & POSS SECONDARY INFECTION. HAS LOW ORDER OF ACUTE ORAL TOX IF (EFTS OF OVEREXP)
Carcinogenicity - NTP: YES
Carcinogenicity - IARC: YES
Carcinogenicity - OSHA: YES
Explanation Carcinogenicity: GASOLINE - IARC 2B; BENZENE, A CONSTITUENT OF GASOLINE:OSHA REGULATED, GROUP 1 (IARC,NTP).
Signs/Symptoms Of Overexp: HLTH HAZ:INGESTED, BUT MIN AMT ASPIR DURING SUCH INGEST MAY CAUSE DEATH. HIGH PRESS SKIN INJECTIONS ARE SERIOUS MED EMER. RPTD/PRLNG EXPOS TO VAP CNTN HIGH CONC OF BENZENE MAY CAUSE ANEMIA & OTHER BLOOD DISEASES, INCL LEUKEMIA. INHAL TO 100PPM MAY CAUSE SLIGHT DROW/HDCH. 100-200PPM MAY CAUSE FATG/NAUS/ITCH & (ING 11)
Med Cond Aggravated By Exp: OPEN WOUNDS, SKIN DISORDERS, CHRONIC RESPIRATORY DISEASE OR PRE-EXISTING CENTRAL NERVOUS SYSTEM DISEASE.
Emergency/First Aid Proc: INHAL:REMOVE TO FRESH AIR, PROVIDE O*2 THERAPY &/OR RESUSCITATION AS INDICATED. SKIN: REMOVE CONTAMINATED CLOTHING AND FLUSH WITH SOAP AND WATER. EYE: FLUSH WITH WATER FOR AT LEAST 15 MIN. INGEST: RINSE MOUTH WITH WATER. KEEP CALM AND WARM. DO NOT INDUCE VOMIT! ASPIRATION OF MATERIAL INTO LUNGS MAY CAUSE CHEMICAL PNEUMONIA. CALL PHYS IMMED.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: CNTN ALL SPILLS. ABSORB ALL FREE LIQ. REMOVE ALL IGNIT SOURCES/SAFELY STOP FLOW OF SPILL. PVNT FROM ENTER ALL BODIES OF

H*2O. COMPLY W/ALL APPLIC LAWS/REGS. ABSORB MATL/PADS/SAND/EARTH MAY BE USED. CONTAMD H*2O/SOIL MAY BE HAZ TO ANIMAL/ (ING 14)
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: DISPOSE OF PROD/CONTAMD MATL AS EPA "IGNITABLE HAZ WASTE". USE ONLY APPRVD TRTMT TRANSPORTERS & DISP SITE IN COMPLIANCE W/ALL APPLICA FED/ST/LOC REGS. MAINTAIN SURVEILLANCE OF ABSORBED MATL UNTIL FINAL DISP TO OBSERVE FOR EMISSION OF VOLAT, (ING 17)
Precautions-Handling/Storing: KEEP AWAY FROM HEAT/SPARKS/OPEN FLAME. AVOID BRTHG VAP/MIST. AVOID SKIN/EYE CONT. KEEP CONTR CLSD & PLAINLY LBLD. TRANSFER LINES MUST BE (ING 17)
Other Precautions: USE ONLY AS MOTOR FUEL. HNDL/TRANSPORT/STORE IN ACCORD W/APPLIC LAWS/REGS. ELEC EQUIP SHOULD BE APPRVD FOR CLASSIFIED AREA. REMOVE SOILED CLTHG/LAUNDER BEFORE RE-USE. DISCARD OIL SOAKED SHOES. WEAR FULL LNGTH CLTHG/LAUNDER ON (ING 18)

Control Measures

Respiratory Protection: USE NIOSH/MSHA APPROVED SCBA IN CONFINED SPACES OR WHEN EXPOSED TO HEAVY MIST.
Ventilation: LOCAL EXHAUST:GENERALLY NOT REQUIRED. MECH(GEN): EXPLOSION PROOF(APPROVED FOR CLASSIFIED AREA).
Protective Gloves: IMERVIOUS GLOVES.
Eye Protection: CHEMICAL WORKERS GOGGLES (FP N).
Other Protective Equipment: IMPERVIOUS CLOTHING, EYEWASH/BATH.
Work Hygienic Practices: WASH SKIN THORO W/SOAP/H*2O BEFORE EAT/DRINK/ SMOKING. VENT MAY BE USED TO CTRL/REDUCE AIRBORNE CONC. STAND (ING 23)
Suppl. Safety & Health Data: VP: 275-475@68F. APPEAR/ODOR:COLOR FOR IDENTIFICATION(CLEAR RED/BRONZE/YELLOW ARE TYPICAL). EXTING MEDIA:MAY BE USED BY EXPER FIRE FIGHT FOR INTENSITY CTRL/TO COOL EXPOS AREAS. EXPLOS HAZ:EXPLOS VAP. DO NOT PRESSURIZE/CUT/HEAT/WELD/EXPOSE SUCH CONTR OR VESSELS TO SOURCES OF IGNIT. VAP CAN READILY FORM EXPLOS MIX(ING 9)

Transportation Data

Trans Data Review Date: 92072
DOT PSN Code: GTN
DOT Proper Shipping Name: GASOLINE
DOT Class: 3
DOT ID Number: UN1203
DOT Pack Group: II
DOT Label: FLAMMABLE LIQUID
IMO PSN Code: HRV
IMO Proper Shipping Name: GASOLINE
IMO Regulations Page Number: 3141
IMO UN Number: 1203
IMO UN Class: 3.1
IMO Subsidiary Risk Label: -
IATA PSN Code: RMF

IATA UN ID Number: 1203
IATA Proper Shipping Name: MOTOR SPIRIT
IATA UN Class: 3
IATA Label: FLAMMABLE LIQUID
AFI PSN Code: MUC
AFI Prop. Shipping Name: GASOLINE
AFI Class: 3
AFI ID Number: UN1203
AFI Pack Group: II
AFI Basic Pac Ref: 7-7

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Disposal Data

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Label Data

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Label Required: YES
Label Status: G
Common Name: REGULAR UNLEADED GASOLINE
Special Hazard Precautions: ACUTE/CHRONIC:HARMFUL/FATAL IF SWALLOW/ ASPIRATED. LONG TERM EXPOS TO VAP HAS CAUSED CANCER IN SOME LAB ANIMALS. INGEST MAY CAUSE GI DISTURB. ASPIR INTO LUNGS MAY CAUSE PNEUM. PRLNG CONT W/SKIN MAY RSLT IN DEFAT/RED/ITCH/INFLAM/CRACK & POSS SECONDARY INFECTION. HAS LOW ORDER OF ACUTE ORAL TOX IF (EFTS OF OVEREXP) HLTH HAZ: INGESTED, BUT MIN AMT ASPIR DURING SUCH INGEST MAY CAUSE DEATH. HIGH PRESS SKIN INJECTIONS ARE SERIOUS MED EMER. RPTD/PRLNG EXPOS TO VAP CNTN HIGH CONC OF BENZENE MAY CAUSE ANEMIA & OTHER BLOOD DISEASES, INCL LEUKEMIA. INHAL TO 100PPM MAY CAUSE SLIGHT DROW/HDCH. 100-200PPM MAY CAUSE FATG/NAUS/ ITCH & (ING 11)
Label Name: AMERADA HESS CORP
Label Street: 1 HESS PLAZA
Label City: WOODBRIDGE
Label State: NJ
Label Zip Code: 07095
Label Country: US
Label Emergency Number: 00-424-9300(CHEMTREC)

ARCHER DANIELS MIDLAND CO -- CITRIC ACID ANHYDROUS USP/FCC

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MSDS Safety Information

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FSC: 6810
NIIN: 00-141-2942
MSDS Date: 11/20/2000
MSDS Num: CKYFH
Product ID: CITRIC ACID ANHYDROUS USP/FCC
MFN: 01
Responsible Party
Cage: 84168
Name: ARCHER DANIELS MIDLAND CO
Address: 4666 E FARIES PKWY
Box: 1470
City: DECATUR IL 62526-5666
Info Phone Number: 217-424-5200/7418
Emergency Phone Number: 910-457-5011

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Item Description Information

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Item Manager: S9G
Item Name: CITRIC ACID,ANHYDROUS,TECHNICAL
Specification Number: A-A-59147
Type/Grade/Class: NONE
Unit of Issue: DR
Quantitative Expression: 00000000050LB
UI Container Qty: 0
Type of Container: DRUM

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Ingredients

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Cas: 77-92-9
RTECS #: GE7350000
Name: CITRIC ACID, 2-HYDROXY-1,2,3-PROPANETRICARBOXYLIC ACID

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Health Hazards Data

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LD50 LC50 Mixture: LD50 (ORAL, RAT) 11,700 MG/KG
Route Of Entry Inds - Inhalation: YES
Skin: YES
Ingestion: YES
Carcinogenicity Inds - NTP: NO
IARC: NO
OSHA: NO
Effects of Exposure: PROLONGED CONTACT WITH THE PRODUCT MAY CAUSE IRRITATION.
Explanation Of Carcinogenicity: NONE

Signs And Symptions Of Overexposure: MAY BE SLIGHT EYE IRRITANT, LONG-TERM EXPOSURE TO SKIN COULD BE A MILD IRRITANT.
Medical Cond Aggravated By Exposure: NO INFORMATION AVAILABLE.
First Aid: EYES-IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN. SKIN-WASH AREA WITH WATER, REMOVE CONTMINATED CLOTHING AND LAUNDER BEFORE REUSE.

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Handling and Disposal

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Spill Release Procedures: RECOVER BY VACUUM OR BROOM AND SHOVELL. FLUSH AREA WITH WATER TO REMOVE FINAL TRACES.
Waste Disposal Methods: CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. LANDFILL OR NEUTRALIZE AND FLUSH TO DRAIN. MATERIAL IS BIODEGRADABLE IN WASTE TREATMENT FACILITY.
Handling And Storage Precautions: STORE IN A DRY AREA.
Other Precautions: AQUEOUS SOLUTIONS OF CITRIC ACID CAN, IF IN CONTACT WITH REACTIVE METAL (IRON, ZINC, ALUMINUM) FORM HYDROGEN WHICH FORM EXPLOSIVE MIXTURES.

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Fire and Explosion Hazard Information

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Autoignition Temp: =1000.C, 1832.F
Autoignition Temp Text: -1020C
Extinguishing Media: WATER, CARBON DIOXIDE, FOAM, POWDER EXTINGUISHER.
Fire Fighting Procedures: FIRE FIGHTERS WEAR PROTECTIVE CLOTHING AND NIOSH APPROVED RESPIRATOR.
Unusual Fire/Explosion Hazard: NONE-AT OPTIMUM AIR CONCENTRATION BUREAU OF MINES RELATIVE: EXPLOSIVE RATING=WEAK.

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Control Measures

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Respiratory Protection: NIOSH APPROVED CHEMICAL RESPIRATOR WITH DUST AND MIST FILTER WHILE HANDLING CRYSTALLINE MATERIAL AND CONCENTRATED SOLUTIONS.
Ventilation: LOCAL EXHAUST SUFFICENT TO CONTROL DUST.
Protective Gloves: STANDARD WORK GLOVES.
Eye Protection: SAFETY GLASSES.
Other Protective Equipment: NONE.
Work Hygienic Practices: AVOID CONTACT WITH SKIN, EYES, CLOTHING. AVOID INHALTION.
Supplemental Safety and Health: 1 DR=50 LBS NET EA . ABBREVIATION: N/A=NOT APPLICABLE OR NOT AVAILABLE. N/K=UNKNOWN. N/P=NOT PROVIDED. N/R=NOT RELEVANT. N/D=NOT DETERMINED. N/E=NOT ESTABLISHED. GI=GASTROINTESTINAL.

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Physical/Chemical Properties

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HCC: N1
NRC/State LIC No: NOT RELEVANT
Melt/Freeze Pt: =153.C, 307.4F

Decomp Text: NOT PROVIDED
Vapor Pres: N/A-SOLID
Spec Gravity: 1.665
PH: NOT PROVIDED
Solubility in Water: GREATER THAN 50%
Appearance and Odor: WHITE ODORLESS POWDER AND/OR GRANULES
Corrosion Rate: NOT PROVIDED
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Reactivity Data
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Stability Indicator: YES
Stability Condition To Avoid: NONE KNOWN.
Materials To Avoid: ?? ITRATES AND STRONG OXIDIZERS
Hazardous Decomposition Products: NONE KNOWN.
Hazardous Polymerization Indicator: NO
Conditions To Avoid Polymerization: NONE
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Toxicological Information
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Toxicological Information: NOT PROVIDED
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Ecological Information
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Ecological: NOT PROVIDED
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MSDS Transport Information
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Transport Information: NOT PROVIDED
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Regulatory Information
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Sara Title III Information: NOT PROVIDED
Federal Regulatory Information: NOT PROVIDED
State Regulatory Information: NOT PROVIDED
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Other Information
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Other Information: DANGER! IRRITATING TO SKIN/RESPIRATORY TRACT; SEVERELY IRRITATING TO EYES. ALSO CAUSES GI IRRITATION, HYPOCALCEMIA. CHRONIC: TOOTH ENAMEL EROSION. EXPLOSIVE! FLAMMABLE.
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Transportation Information
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Responsible Party Cage: 84168
Trans ID NO: 155914
Product ID: CITRIC ACID ANHYDROUS USP/FCC
MSDS Prepared Date: 11/20/2000
Review Date: 02/01/2001

MFN: 1
Net Unit Weight: 50 LBS
Multiple KIT Number: 0
Unit Of Issue: DR
Container QTY: 0
Type Of Container: DRUM
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Detail DOT Information
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DOT PSN Code: ZZZ
DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
==========
Detail IMO Information
==========
IMO PSN Code: ZZZ
IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION
==========
Detail IATA Information
==========
IATA PSN Code: ZZZ
IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
==========
Detail AFI Information
==========
AFI PSN Code: ZZZ
AFI Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
==========
HAZCOM Label
==========
Product ID: CITRIC ACID ANHYDROUS USP/FCC
Cage: 84168
Company Name: ARCHER DANIELS MIDLAND CO
Street: 4666 E FARIES PKWY
PO Box: 1470
City: DECATUR IL
Zipcode: 62526-5666
Health Emergency Phone: 910-457-5011
Label Required IND: Y
Date Of Label Review: 02/01/2001
Status Code: A
MFG Label NO: NOT PROVIDED
Label Date: 11/20/2000
Year Procured: 2001
Origination
Eye Protection IND: YES
Skin Protection IND: YES
Signal Word: CAUTION
Respiratory Protection IND: NO

Health Hazard: Slight
Contact Hazard: Slight
Fire Hazard: None
Reactivity Hazard: None
Hazard And Precautions: TARGET ORGANS: NOT PROVIDED. AVOID CONTACT WITH SKIN, EYES OR CLOTHING. FIRST AID: INHALATION: REMOVE TO FRESH AIR AND SUPPORT BREATHING AS NEEDED. EYES/SKIN: IMMEDIATELY REMOVE CONTAMINATED CLOTHING. RINSE WITH PLENTY OF WATER FOR AT LEAST15 MINUTES. CALL A PHYSICIAN. INGESTION: CONSULT PHYSICIAN BEFORE INDUCING VOMITING.
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AGE REFINING & MARKETING -- DIESEL FUEL OIL - DIESEL FUEL
MATERIAL SAFETY DATA SHEET
NSN: 9140002865295
Manufacturer's CAGE: 0T116
Part No. Indicator: A
Part Number/Trade Name: DIESEL FUEL OIL

General Information

Item Name: DIESEL FUEL
Company's Name: AGE REFINING AND MARKETING
Company's Street: 7811 S PRESA
Company's City: SAN ANTONIO
Company's State: TX
Company's Country: US
Company's Zip Code: 78223-3531
Company's Emerg Ph #: 512-532-5300
Company's Info Ph #: 512-532-5300
Record No. For Safety Entry: 020
Tot Safety Entries This Stk#: 092
Status: SE
Date MSDS Prepared: 13APR92
Safety Data Review Date: 11AUG93
Supply Item Manager: KY
MSDS Serial Number: BRJJH
Specification Number: VV-F-800
Spec Type, Grade, Class: GRADE DF-2
Hazard Characteristic Code: F4
Unit Of Issue: DR
Unit Of Issue Container Qty: 5 GAL
Type Of Container: CAN
Net Unit Weight: 33.8 LBS

Ingredients/Identity Information

Proprietary: NO
Ingredient: LIGHT HYDROCARBON BLEND, CAS NO. 8008-20-6 CAS NO. 64741-44-2 CAS NO. 64742-88-7
Ingredient Sequence Number: 01
Percent: 100%
NIOSH (RTECS) Number: 1000011HC
OSHA PEL: UNKNOWN
ACGIH TLV: UNKNOWN
Other Recommended Limit: NONE RECOMMENDED

Physical/Chemical Characteristics

Appearance And Odor: CLEAR TO YELLOW, TYPICAL HYDROCARBON ODOR.

Boiling Point: 360-572F
Melting Point: NA
Vapor Pressure (MM Hg/70 F): 0.1
Vapor Density (Air=1): NA
Specific Gravity: 0.81-0.86
Decomposition Temperature: NA
Evaporation Rate And Ref: NA
Solubility In Water: TRACE
Percent Volatiles By Volume: 100
pH: NA
Corrosion Rate (IPY): NA

Fire and Explosion Hazard Data

Flash Point: 100F,38C
Flash Point Method: PMCC
Lower Explosive Limit: 1
Upper Explosive Limit: 5
Extinguishing Media: FOAM, DRY CHEMICAL, CARBON DIOXIDE. WATER MAY BE INEFFECTIVE. USE WATER TO COOL & PROTECT MATERIAL & MEN, FLUSH SPILL.
Special Fire Fighting Proc: MINIMIZE BREATHING GASES, VAPOR, FUMES OR DECOMPOSITION PRODUCTS. USE SUPPLIED AIR BREATHING APPARATUS IN ENCLOSED OR CONFINED AREAS OR AS OTHERWISE NEEDED.
Unusual Fire And Expl Hazrds: NA

Reactivity Data

Stability: YES
Cond To Avoid (Stability): UNDER NORMAL CONDITIONS, THE MATERIAL IS STABLE.
Materials To Avoid: STRONG OXIDANTS SUCH AS LIQUID CHLORINE, CONCENTRATED OXYGEN, SODIUM HYPOCHLORITE OR CALCIUM HYPOCHLORITE.
Hazardous Decomp Products: FUMES, SMOKE, CARBON MONOXIDE, ALDEHYDES AND OTHER DECOMPOSITION PRODUCTS.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): MATERIAL IS NOT KNOWN TO POLYMERIZE.

Health Hazard Data

LD50-LC50 Mixture: ORAL LD50 (RAT) IS = 5-15 G/KG
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: ACUTE: CENTRAL NERVOUS SYSTEM DEPRESSION WITH EXTREME EXPOSURE; EFFECTS MAY INCLUDE ANESTHESIA, COMA, RESPIRATORY ARREST, AND IRREGULAR HEART RATE. OXYGEN DEPRIVATION IS POSSIBLE IF WORKING IN A CONFINED AREA. CHRONIC: NO KNOWN MAJOR CUMULATIVE OR LATENT EFFECTS HAVE BEEN REPORTED.

Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT CARCINOGENIC.
Signs/Symptoms Of Overexp: INHALATION-IRRITATION OF THE UPPER RESPIRATORY TRACT, DEPRESSION, DIZZINESS, HEADACHE, UNCOORDINATION, ANESTHESIA, COMA & RESPIRATORY ARREST. SKIN-DEFATTING, IRRITATION & BURNING SENSATION & SWELLING OF LIDS. EYE-SEVERE BURNING SENSATION. INGESTION- IRRITATION OF THROAT, ESOPHAGUS & STOMACH, VOMITING.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
Emergency/First Aid Proc: EYES-FLUSH EYES WITH LARGE AMOUNTS OF WATER FOR 15 MIN. SEEK MEDICALA TTENTION. SKIN-WASH WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHES & FOOTWARE. SEEK MEDICAL ATTENTION. INHALATION-REMOVE TO FRESH AIR; RESTORE BREATHING IF NEEDED; ADMINISTER OXYGEN; SEEK MEDICAL HELP. INGESTION-DO NOT INDUCE VOMITING. IF VOMITING OCCURS, KEEP AIRWAY CLEAR. SEEK MEDICAL ATTENTION IMMEDIATELY.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: ELIMINATE SOURCES OF IGNITION. CONFINE AREA TO CLEANUP PERSONNEL. VENTILATE CONFINED AREAS. USE EXPLOSION PROOF EQUIPMENT. ABSORB &/OR CONFINE LIQUID WITH SAND, EARTH OR OTHER SUITABLE MATERIAL. KEEP PRODUCT OUT OF SEWERS OR WATERCOURSES.
Waste Disposal Method: DISPOSAL OF WASTE MATERIAL ARE REGULATED AND ACTION TO HANDLE OR DISPOSE OF SPILLED OR RELEASED MATERIALS MUST MEET ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
Precautions-Handling/Storing: PROTECT AGAINST PHYSICAL DAMAGE. OUTSIDE OR DETACHED STORAGE PREFERRED. STORE IN COOL, WELL-VENTILATED AREA AWAY FROM IGNITION SOURCES & OXIDIZERS.
Other Precautions: TO PREVENT FIRE OR EXPLOSION RISK FROM STATIC ACCUMULATION & DISCHARGE, GROUND PRODUCT TRANSFER SYSTEM IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION FOR PETROLEUM PRODUCTS.

Control Measures

Respiratory Protection: RESPIRATORY PROTECTION NOT REQUIRED UNDER NORMAL USE. USE NIOSH.MSHA APPROVED ORGANIC VAPOR RESPIRATOR FOLLOWING MANUFACTURERS RECOMMENDATIONS WHERE SPRAY, MIST OR VAPORS MAY CAUSE SUGGESTED TLV TO BE EXCEEDED.
Ventilation: WORK IN VENTILATED AREAS. SPECIAL VENTILATION IS NOT REQUIRED UNDER NORMAL USE.
Protective Gloves: IMPERVIOUS GLOVES.
Eye Protection: FACE SHIELD & GOGGLES, CHEMICAL GOGGLES.
Other Protective Equipment: STANDARD WORK CLOTHING. CLOTHES OR FOOTWARE THAT CANNOT BE DECONTAMINATED SHOULD BE DISCARDED.
Work Hygienic Practices: SHOWER AND EYE WASH FACILITIES SHOULD BE ACCESSIBLE.
Suppl. Safety & Health Data: NOTE TO PHYSICIAN-GASTRIC LAVAGE ONLY IF

LARGE QUANTITIES HAVE BEEN INGESTED. GUARD AGAINST ASPIRATION INTO LUNGS WHICH MAY RESULT IN CHEMICAL PNEUMONITIS. IRREGULAR HEART BEAT MAY OCCUR; USE OF ADRENALIN IS NOT ADVISABLE. TREAT SYMPTOMATICALLY.

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Transportation Data

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Trans Data Review Date: 93223
DOT PSN Code: GJL
DOT Proper Shipping Name: FLAMMABLE LIQUIDS, N.O.S.
DOT Class: 3
DOT ID Number: UN1993
DOT Pack Group: III
DOT Label: FLAMMABLE LIQUID
IMO PSN Code: HIA
IMO Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. o
IMO Regulations Page Number: 3345
IMO UN Number: 1993
IMO UN Class: 3.3
IMO Subsidiary Risk Label: -
IATA PSN Code: MCA
IATA UN ID Number: 1993
IATA Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. *
IATA UN Class: 3
IATA Label: FLAMMABLE LIQUID
AFI PSN Code: MCA
AFI Prop. Shipping Name: FLAMMABLE LIQUIDS, N.O.S.
AFI Class: 3
AFI ID Number: UN1993
AFI Pack Group: III
AFI Basic Pac Ref: 7-7
MMAC Code: NR

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Disposal Data

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Label Data

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Label Required: YES
Technical Review Date: 11AUG93
Label Status: F
Common Name: DIESEL FUEL OIL
Chronic Hazard: YES
Signal Word: WARNING!
Acute Health Hazard-Moderate: X
Contact Hazard-Slight: X
Fire Hazard-Moderate: X
Reactivity Hazard-None: X
Special Hazard Precautions: IN CASE OF SPILL: ELIMINATE SOURCES OF

IGNITION. CONFINE AREA TO CLEANUP PERSONNEL. VENTILATE CONFINED AREAS. USE EXPLOSION PROOF EQUIPMENT. ABSORB &/OR CONFINE LIQUID WITH SAND, EARTH OR OTHER SUITABLE MATERIAL. KEEP PRODUCT OUT OF SEWERS OR WATERCOURSES. FIRST AID: EYES-FLUSH EYES WITH LARGE AMOUNTS OF WATER FOR 15 MIN. SEEK MEDICALA TTENTION. SKIN-WASH WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHES & FOOTWARE. SEEK MEDICAL ATTENTION. INHALATION-REMOVE TO FRESH AIR; RESTORE BREATHING IF NEEDED; ADMINISTER OXYGEN; SEEK MEDICAL HELP. INGESTION-DO NOT INDUCE VOMITING. IF VOMITING OCCURS, KEEP AIRWAY CLEAR. SEEK MEDICAL ATTENTION IMMEDIATELY.
Protect Eye: Y
Protect Skin: Y
Label Name: AGE REFINING AND MARKETING
Label Street: 7811 S PRESA
Label City: SAN ANTONIO
Label State: TX
Label Zip Code: 78223-3531
Label Country: US
Label Emergency Number: 512-532-5300

SHIELDALLOY METALLURGICAL -- FERROSILICON
MATERIAL SAFETY DATA SHEET
NSN: 963000N052684
Manufacturer's CAGE: IN758
Part No. Indicator: A
Part Number/Trade Name: FERROSILICON

General Information

Company's Name: SHIELDALLOY METALLURGICAL CORP
Company's Street: 12 WEST BLVD
Company's P. O. Box: 768
Company's City: NEWFIELD
Company's State: NJ
Company's Country: US
Company's Zip Code: 08344
Company's Emerg Ph #: 800-424-9300 (CHEMTREC)
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 01SEP89
Safety Data Review Date: 06SEP94
MSDS Serial Number: BVMSN
Hazard Characteristic Code: NK

Ingredients/Identity Information

Proprietary: NO
Ingredient: IRON
Ingredient Sequence Number: 01
Percent: BALANCE
NIOSH (RTECS) Number: NO4565500
CAS Number: 7439-89-6
OSHA PEL: N/K (FP N)
ACGIH TLV: N/K (FP N)

Proprietary: NO
Ingredient: SILICON
Ingredient Sequence Number: 02
Percent: 47-76
NIOSH (RTECS) Number: VW0400000
CAS Number: 7440-21-3
OSHA PEL: 10 MG/M3 TDUST
ACGIH TLV: 10 MG/M3 TDUST

Physical/Chemical Characteristics

Appearance And Odor: SILVER METALLIC, POWDER, ODORLESS

Boiling Point: N/A
Melting Point: >2192F,>120
Vapor Pressure (MM Hg/70 F): N/A
Vapor Density (Air=1): N/A
Specific Gravity: 2-5
Evaporation Rate And Ref: NOT APPLICABLE
Solubility In Water: INSOLUBLE/NEGLIGIBLE
Percent Volatiles By Volume: N/A

Fire and Explosion Hazard Data

Flash Point: N/A
Lower Explosive Limit: N/A
Upper Explosive Limit: N/A
Extinguishing Media: CLASS D FIRE:DO NOT USE WATER. USE DRY CHEMICAL, DRY SAND OR CO*2 TO SMOTHER FIRE.
Special Fire Fighting Proc: NIOSH/MSHA APPRVD SCBA & FULL PROT EQUIP (FP N).FIRE MAY BE ISOLATED & ALLOWED TO BURN ITSELF OUT. DO NOT DISTURB BURNING METAL WHILE EXTING THE FIRE.
Unusual Fire And Expl Hazrds: FIRES/EXPLOSIONS MAY BE INITIATED BY EXPOSING ANY CONCENTRATED DUST SUSPENSION IN AN ENCLOSED AREA TO SPARK/ FLAME.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): NOT APPLICABLE
Materials To Avoid: ACIDS, STRONG OXIDIZERS, STRONG BASES.
Hazardous Decomp Products: NONE.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT.

Health Hazard Data

LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: ACUTE:EFFECTS ASSOCIATED W/OVEREXPOSURE TO METAL DUSTS MAY INCLUDE RESPIRATORY IRRITATION, CONJUNCTIVITIS, PNEUMOCONIOSIS, ETC.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT RELEVANT.
Signs/Symptoms Of Overexp: SEE HEALTH HAZARDS.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
Emergency/First Aid Proc: INGEST:CALL MD IMMEDIATELY (FP N). INHAL:IF

IRRITATION OCCURS, REMOVE TO FRESH AIR. CONT PHYS. SKIN:IF IRRITATION OCCURS, WASH SKIN. CONT PHYS. EYES:IF IRRITATION OCCURS, FLUSH EYES FOR AT LEAST 15 MINUTES. CONT PHYS.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: NO SPECIAL STEPS NECESSARY.
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: DISPOSE OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
Precautions-Handling/Storing: AVOID AND CONTROL OPERATIONS WHICH CREATE DUSTING.
Other Precautions: NONE SPECIFIED BY MANUFACTURER.

Control Measures

Respiratory Protection: IN DUSTY AREAS, USE NIOSH/MSHA APPROVED SCHEDULED 21-C RESPIRATOR.
Ventilation: LOCAL EXHAUST:RECOMMENDED WHERE DUSTING MAY OCCUR. MECHANICAL (GENERAL):USE FOR GENERAL AREA CONTROL.
Protective Gloves: IMPERVIOUS GLOVES (FP N).
Eye Protection: ANSI APPRVD CHEM WORKERS GOGGLES (FP N).
Other Protective Equipment: NONE SPECIFIED BY MANUFACTURER.
Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.
Suppl. Safety & Health Data: NONE SPECIFIED BY MANUFACTURER.

Transportation Data

Trans Data Review Date: 94249

Disposal Data

Label Data

Label Required: YES
Technical Review Date: 06SEP94
Label Date: 08SEP94
Label Status: G
Common Name: FERROSILICON
Chronic Hazard: YES
Signal Word: WARNING!
Acute Health Hazard-Moderate: X
Contact Hazard-Slight: X
Fire Hazard-None: X
Reactivity Hazard-None: X
Special Hazard Precautions: ACUTE:EFFECTS ASSOCIATED WITH OVEREXPOSURE TO METAL DUST MAY INCLUDE RESPIRATORY IRRITATION, CONJUNCTIVITIS, AND

PNEUMOCONIOSIS (LUNG DISEASE-BLACK LUNG). CHRONIC:LUNG DISEASE.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: SHIELDALLOY METALLURGICAL CORP
Label Street: 12 WEST BLVD
Label P.O. Box: 768
Label City: NEWFIELD
Label State: NJ
Label Zip Code: 08344
Label Country: US
Label Emergency Number: 800-424-9300 (CHEMTREC)

EAGLE-PICHER INDUSTRIES -- FLOOR DRY, CELATOM
MATERIAL SAFETY DATA SHEET
NSN: 962000N030696
Manufacturer's CAGE: 0PXU6
Part No. Indicator: B
Part Number/Trade Name: FLOOR DRY, CELATOM

==========

General Information

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Company's Name: EAGLE-PICHER INDUSTRIES INC
Company's Street: 1755 E PLUMB LANE SUITE 151
Company's City: RENO
Company's State: NV
Company's Country: US
Company's Zip Code: 89510
Company's Emerg Ph #: 702-333-7600
Company's Info Ph #: 702-322-3331; 702-333-7632
Record No. For Safety Entry: 002
Tot Safety Entries This Stk#: 002
Status: SMJ
Date MSDS Prepared: 01JUL93
Safety Data Review Date: 14JUL95
MSDS Preparer's Name: PATRICK T. FLYNN, JR.
Preparer's Company: SAME
MSDS Serial Number: BXZPX

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Ingredients/Identity Information

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Proprietary: NO
Ingredient: DIATOMACEOUS EARTH (DIATOMACEOUS SILICA); (DIATOMACEOUS EARTH, CALCINED)
Ingredient Sequence Number: 01
Percent: 100
NIOSH (RTECS) Number: 1000784CE
CAS Number: 91053-39-3
OSHA PEL: N/K (FP N)
ACGIH TLV: N/K (FP N)

Proprietary: NO
Ingredient: SILICA, CRYSTALLINE - CRISTOBALITE; (CRYSTALLINE SILICA (CRISTOBALITE))
Ingredient Sequence Number: 02
Percent: <1
NIOSH (RTECS) Number: VV7325000
CAS Number: 14464-46-1
OSHA PEL: N/K (FP N)
ACGIH TLV: 0.05 MG/M3 RDUST

Proprietary: NO
Ingredient: SILICA, CRYSTALLINE - QUARTZ; (CRYSTALLINE SILICA (QUARTZ))
Ingredient Sequence Number: 03
Percent: <1
NIOSH (RTECS) Number: VV7330000
CAS Number: 14808-60-7
OSHA PEL: N/K (FP N)
ACGIH TLV: 0.1 MG/M3 RDUST

Proprietary: NO
Ingredient: SUPDAT: MOST IMPORTANT CONTRIBUTORS TO EXCESS IN NMRD & LUNG CANCER. ALSO, IMPROVEMENTS IN DUST CTL IN INDUSTRY (ING 5)
Ingredient Sequence Number: 04
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 4: APPEAR TO HAVE ABATED EXCESS RISK OF SILICOSIS & LUNG CANCER IN TODAY'S WORK ENVIRON. TARGET ORGAN: LUNGS.
Ingredient Sequence Number: 05
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: RESP PROT: DUST CONC IS GREATER THAN 10 TIMES & LESS THAN 100 TIMES PEL USE FULL FACEPLATE RESP W/REPLACEABLE (ING 7)
Ingredient Sequence Number: 06
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 6: DUST FILTER; IF GREATER THAN 100 & LESS THAN 200 TIMES PEL USE POWER AIR-PURIFYING (POS PRESS) RESP (ING 8)
Ingredient Sequence Number: 07
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 7: W/REPLACEABLE FILTER; IF GREATER THAN 200 TIMES PEL USE TYPE C, SUPPLIED-AIR RESP, CONTINUOUS FLOW TYPE (ING 9)
Ingredient Sequence Number: 08
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 8: (POS PRESS) WITH FULL FACEPIECE, HOOD OR HELMET.
Ingredient Sequence Number: 09
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Physical/Chemical Characteristics

Appearance And Odor: ODORLESS, GRANULAR PRODUCT, BUFF TO OFF-WHITE.
Boiling Point: N/A
Vapor Pressure (MM Hg/70 F): N/A
Vapor Density (Air=1): N/A
Specific Gravity: 2.2
Solubility In Water: <2%
pH: SUPDAT

Fire and Explosion Hazard Data

Extinguishing Media: MEDIA SUITABLE FOR SURROUNDING FIRE (FP N).
Special Fire Fighting Proc: USE NIOSH/MSHA APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT (FP N).
Unusual Fire And Expl Hazrds: NONE SPECIFIED BY MANUFACTURER.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): NONE SPECIFIED BY MANUFACTURER.
Materials To Avoid: HYDROFLUORIC ACID; PRODUCTS CONTAINING SILICA MAY REACT VIOLENTLY WITH HYDROFLUORIC ACID.
Hazardous Decomp Products: NOT APPLICABLE.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT

Health Hazard Data

LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: ACUTE: INHAL: UPPER RESP IRRIT. MAY CAUSE COUGH/THROAT IRRIT. CAN CAUSE DRYNESS OF NASAL PASSAGES & CONGESTION OF UPPER RESP TRACT. SKIN: NOT ABSORBED BY SKIN. MAY CAUSE DRYNESS. EYES: MAY CAUSE IRRIT/INFLAMM. INGEST: SHORT-TERM EXPOS NOT CONSIDERED HARMFUL. CHRONIC:INHAL OF CRYSTALLINE SILICA DUST IN (EFTS OF OVEREXP)
Carcinogenicity - NTP: YES
Carcinogenicity - IARC: YES

Carcinogenicity - OSHA: NO
IARC MONO, SUPP, VOL 7, PG 341, 1987:GRP 2A. NTP 7TH ANNUAL RPT (SUPDAT)
Signs/Symptoms Of Overexp: HLTH HAZ: EXCESS OF TLV/PEL OVER EXTENDED NUMBER OF YRS MAY CAUSE SILICOSIS, PROGRESSIVE SOMETIMES FATAL LUNG DISEASE. MFR W/OTHER MEMBERS OF INTERNATL DIATOMITE PRODUCERS ASSOC SPONSORED STUDY TO EXAMINE LONG TERM HLTH EFTS AMONG CERTAIN WORKERS IN DIATOMACEOUS EARTH (DE) INDUSTRY. REPORT CONCLUDED AN INCR IN (SUPDAT)
Med Cond Aggravated By Exp: PRE-EXISTING DISEASES OF THE UPPER RESPIRATORY TRACT AND LUNG SUCH AS BRONCHITIS, EMPHYSEMA AND ASTHMA.
Emergency/First Aid Proc: SKIN: USE MOISTURE RENEWING LOTIONS IF DRYNESS OCCURS. EYES: WASH WITH GENEROUS QUANTITIES OF WATER FOR AT LEAST 15 MINUTES. CONSULT MD IF IRRITATION PERSISTS. INHAL: REMOVE TO FRESH AIR. INGEST: DRINK GENEROUS AMOUNTS OF WATER TO REDUCE BULK AND DRYING EFFECTS.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: VACUUM CLEAN SPILLAGE, WET SWEEP OR WASH AWAY. AVOID CREATING DUST.
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: DISPOSAL MUST BE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS (FP N). NON-BIODEGRADABLE. USE SOLID WASTE DISPOSAL COMMON TO LANDFILL TYPE OPERATIONS OR IN SLURRY TO DUMPS. NOT CONSIDERED A HAZARDOUS WASTE UNDER RCRA (40 CFR PART 261).
Precautions-Handling/Storing: AVOID CREATING DUST. REPAIR OR PROPERLY DISPOSE OF BROKEN BAGS. STORE IN A DRY PALCE TO MAINTAIN PRODUCT QUALITY.
Other Precautions: MAINTENANCE OF CRYSTALLINE SILICA DUST CONCENTRATIONS AT OR BELOW LEVELS SET BY OCCUPATIONAL STANDARD SETTING AGENCIES WILL MINIMIZE/ELIMINATE POTENTIAL RISK OF NON-MALIGNANT RESPIRATORY DISEASE (NMRD) OR LUNG CANCER.

Control Measures

Respiratory Protection: NIOSH/MSHA APPRVD RESPS FOR PROT AGAINST PNEUMOCONIOSIS PRODUCING DUSTS RECOM WHEN DUST IS PRESENT. IF DUST CONC IS LESS THAN 10 TIMES PEL USE QUARTER OR HALF MASK RESP W/REPLACEMENT DUST FILTER/SINGLE USE DUST RESP W/VALVE. IF (ING 6)
Ventilation: LOCAL. CONTROL W/IN RECOM TLV/PEL. REFER TO ACGIH PUB "INDUSTRIAL VENT" OR SIMILAR PUBS FOR DESIGN OF VENT SYSTEMS.
Protective Gloves: IMPERVIOUS GLOVES (FP N).
Eye Protection: ANSI APPRVD CHEM WORKERS GOGGLES (FP N).
Other Protective Equipment: PROTECTIVE CLOTHING/FOOTWEAR NOT NORMALLY NECESSARY.
Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.
Suppl. Safety & Health Data: PH: 7 (10% SLURRY). EXPLAN OF CARCIN: ON CARCINS, 1994:ANTIC TO BE CARCIN. EFTS OF OVEREXP: NON-MALIGNANT RESP DISEASE (NMRD) & LUNG CANCER INCIDENCE AMONG DE WORKERS STUDIED WHEN COMPARED TO NATL & REGIONAL POPULATIONS. IT FURTHER CONCLUDED RELATIVELY INTENSE EXPOS THAT OCCURRED BEFORE 1950'S WERE PROBABLY (ING 4)

Transportation Data

Disposal Data

Label Data

Label Required: YES
Technical Review Date: 13JUL95
Label Date: 03JUL95
Label Status: G
Common Name: FLOOR DRY, CELATOM
Chronic Hazard: YES
Signal Word: CAUTION!
Acute Health Hazard-Slight: X
Contact Hazard-Slight: X
Fire Hazard-None: X
Reactivity Hazard-None: X
Special Hazard Precautions: ACUTE: INHALATION: UPPER RESPIRATORY TRACT IRRITANT. MAY CAUSE COUGHING OR THROAT IRRITATION. SKIN: MAY CAUSE DRYNESS. EYES: MAY CAUSE IRRITATION OR INFLAMMATION. CHRONIC: CANCER HAZARD. CONTAINS SILICA, CRYSTALLINE-CRISTOBALITE AND -QUARTZ WHICH ARE LISTED AS ANIMAL LUNG CARCINOGENS (FP N). CRYSTALLINE SILICA MAY CAUSE SILICOSIS, A PROGRESSIVE SOMETIMES FATAL LUNG DISEASE.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: EAGLE-PICHER INDUSTRIES INC
Label Street: 1755 E PLUMB LANE SUITE 151
Label City: RENO
Label State: NV
Label Zip Code: 89510
Label Country: US
Label Emergency Number: 702-333-7600

ETHYLENE GLYCOL

MSDS Number: E5125 --- *Effective Date: 02/25/99*

1. Product Identification

Synonyms: 1,2-Ethanediol; glycol; 1,2-Dihydroxyethane; Ethylene Alcohol; Ethulene Dihydrate
CAS No.: 107-21-1
Molecular Weight: 62.07
Chemical Formula: CH2OHCH2OH
Product Codes:
J.T. Baker: 5387, 5574, 5845, 9140, 9298, 9300, 9346, 9349, 9356, L715
Mallinckrodt: 5001, 5037

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ethylene Glycol	107-21-1	99 - 100%	Yes

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL OR FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM.

J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate
Flammability Rating: 1 - Slight
Reactivity Rating: 1 - Slight
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:
Vapor inhalation is generally not a problem unless heated or misted. Exposure to vapors over an extended time period has caused throat irritation and headache. May cause nausea, vomiting, dizziness and drowsiness. Pulmonary edema and central nervous system depression may also develop. When heated or misted, has produced rapid, involuntary eye movement and coma.

Ingestion:
Initial symptoms in massive dosage parallel alcohol intoxication, progressing to CNS depression, vomiting, headache, rapid respiratory and heart rate, lowered blood pressure, stupor, collapse, and unconsciousness with convulsions. Death from respiratory arrest or cardiovascular collapse may follow. Lethal dose in humans: 100 ml (3-4 ounces).

Skin Contact:
Minor skin irritation and penetration may occur.

Eye Contact:
Splashes may cause irritation, pain, eye damage.

Chronic Exposure:
Repeated small exposures by any route can cause severe kidney problems. Brain damage may also occur. Skin allergy can develop. May damage the developing fetus.

Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders, eye problems, or impaired liver, kidney, or respiratory function may be more susceptible to the effects of this substance.

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4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:
Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:
Give sodium bicarbonate intravenously to treat acidosis. Urinalysis may show low specific gravity, proteinuria, pyuria, cylindruria, hematuria, calcium oxide, and hippuric acid crystals. Ethanol can be used in antidotal treatment but monitor blood glucose when administering ethanol because it can cause hypoglycemia. Consider infusion of a diuretic such as mannitol to help prevent or control brain edema and hemodialysis to remove ethylene glycol from circulation.

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5. Fire Fighting Measures

Fire:
Flash point: 111C (232F) CC
Autoignition temperature: 398C (748F)
Flammable limits in air % by volume:
lel: 3.2; uel: 15.3
Slight to moderate fire hazard when exposed to heat or flame.
Explosion:
Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Containers may explode when involved in a fire.
Fire Extinguishing Media:
Dry chemical, foam or carbon dioxide. Water or foam may cause frothing. Water spray may be used to extinguish surrounding fire and cool exposed containers. Water spray will also reduce fume and irritant gases.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Toxic gases and vapors may be released if involved in a fire.

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6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from acids and oxidizing materials. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
50 ppm Ceiling

-ACGIH Threshold Limit Value (TLV):
50 ppm Ceiling (vapor)
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, a half-face respirator with an organic vapor cartridge and particulate filter (NIOSH type P95 or R95 filter) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece respirator with an organic vapor cartridge and particulate filter (NIOSH P100 or R100 filter) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. Please note that N series filters are not recommended for this material. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

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9. Physical and Chemical Properties

Appearance:
Clear oily liquid.

Odor:
Odorless.

Solubility:
Miscible in water.

Specific Gravity:
1.1 @20C/4C

pH:
No information found.

% Volatiles by volume @ 21C (70F):
100

Boiling Point:
197.6C (388F)

Melting Point:
-13C (9F)

Vapor Density (Air=1):
2.14

Vapor Pressure (mm Hg):
0.06 @ 20C (68F)

Evaporation Rate (BuAc=1):
No information found.

---

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition. May produce acrid smoke and irritating fumes when heated to decomposition.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Strong oxidizing agents. Reacts violently with chlorosulfonic acid, oleum, sulfuric acid, perchloric acid. Causes ignition at room temperature with chromium trioxide, potassium permanganate and sodium peroxide; causes ignition at 212F(100C) with ammonium dichromate, silver chlorate, sodium chloride and uranyl nitrate.

Conditions to Avoid:
Heat, flames, ignition sources, water (absorbs readily) and incompatibles.

11. Toxicological Information

Toxicological Data:
Oral rat LD50: 4700 mg/kg; skin rabbit LD50: 9530 mg/kg.
Irritation - skin rabbit: 555mg(open), mild; eye rabbit: 500mg/24H, mild.
Investigated as a tumorigen, mutagen, reproductive effector.
Reproductive Toxicity:
Has shown teratogenic effects in laboratory animals.

--------\Cancer Lists\----------

	---NTP Carcinogen---		
Ingredient	Known	Anticipated	IARC Category
Ethylene Glycol (107-21-1)	No	No	None

12. Ecological Information

Environmental Fate:
When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is not expected to evaporate significantly. When released into water, this material is expected to readily biodegrade. When released into the water, this material is expected to have a half-life between 1 and 10 days. This material is not expected to significantly bioaccumulate. This material has a log octanol-water partition coefficient of less than 3.0. When released into water, this material is not expected to evaporate significantly. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days.
Environmental Toxicity:
The LC50/96-hour values for fish are over 100 mg/l.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

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15. Regulatory Information

--------\Chemical Inventory Status - Part 1\--------------------------------

Ingredient	TSCA	EC	Japan	Australia
Ethylene Glycol (107-21-1)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\--------------------------------

		--Canada--		
Ingredient	Korea	DSL	NDSL	Phil.
Ethylene Glycol (107-21-1)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\----------------

	-SARA 302-		------SARA 313------	
Ingredient	RQ	TPQ	List	Chemical Catg.
Ethylene Glycol (107-21-1)	No	No	Yes	No

--------\Federal, State & International Regulations - Part 2\----------------

		-RCRA-	-TSCA-
Ingredient	CERCLA	261.33	8(d)
Ethylene Glycol (107-21-1)	5000	No	No

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Chemical Weapons Convention:  No     TSCA 12(b):  No     CDTA:  No

SARA 311/312:  Acute: Yes      Chronic: Yes  Fire: No  Pressure: No

Reactivity: No          (Pure / Liquid)
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Australian Hazchem Code: No information found.
Poison Schedule: No information found.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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16. Other Information

NFPA Ratings: Health: **1** Flammability: **1** Reactivity: **0**
Label Hazard Warning:
WARNING! HARMFUL OR FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM.
Label Precautions:
Do not breathe vapor or mist.
Use only with adequate ventilation.
Keep container closed.
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
Label First Aid:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Call a physician if irritation develops or persists. If swallowed, give water or milk to drink and induce vomiting. Never give anything by mouth to an unconscious person. In all cases call a physician.
Product Use:
Laboratory Reagent.
Revision Information:
MSDS Section(s) changed since last revision of document include: 8.
Disclaimer:
****
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Prepared by: Strategic Services Division
Phone Number: (314) 539-1600 (U.S.A.)

CORNELL

Material Safety Data Sheets

Division of Facilities Services

DOD Hazardous Material Information (ANSI Format)
For Cornell University Convenience Only

RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Section 1 - Product and Company Identification
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Product Identification: RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411
Date of MSDS: 02/09/1991 **Technical Review Date:** 01/12/1993
FSC: 9150 **NIIN: LIIN:** 00N037800
Submitter: N EN
Status Code: C
MFN: 01
Article: N
Kit Part: N

Manufacturer's Information

Manufacturer's Name: CHEVRON
Post Office Box: 4054
Manufacturer's Address1:
Manufacturer's Address2: RICHMOND, CA 94804
Manufacturer's Country: US
General Information Telephone: 800-582-3835
Emergency Telephone: 800-457-2022;800-424-9300(CHEMTREC)
Emergency Telephone: 800-457-2022;800-424-9300(CHEMTREC)
MSDS Preparer's Name: N/P
Proprietary: N
Reviewed: N
Published: Y
CAGE: 0AHD1
Special Project Code: N

Contractor Information

Contractor's Name: CHEVRON ENVIRONMENTAL HEALTH CENTER INC
Post Office Box: 4054
Contractor's Address1: 15299 SAN PABLO AVE
Contractor's Address2: RICHMOND, CA 94804
Contractor's Telephone: 800-582-3835
Contractor's CAGE: 0AHD1

Section 2 - Compositon/Information on Ingredients
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Ingredient Name: ADDITIVES (INCLUDING INGS 3 & 4)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: RTECS Code: X
=WT: =WT Code:

=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: <40
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: CALCIUM HYDROXIDE
Ingredient CAS Number: 1305-62-0 **Ingredient CAS Code:** M
RTECS Number: EW2800000 **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: 20
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: 15 MG/M3 TDUST **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: 5 MG/M3; 9293 **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical: N

Ingredient Name: LUBRICATING BASE OIL MIXTURE (MULTIPLE CAS NUMBERS)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: RTECS Code: X
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: >60
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: NITROUS ACID, SODIUM SALT; (SODIUM NITRITE) (SARA III)
Ingredient CAS Number: 7632-00-0 **Ingredient CAS Code:** M
RTECS Number: RA1225000 **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: 1
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:

ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity: 100 LBS
DOT Reporting Quantity: 100 LBS
Ozone Depleting Chemical: N

Section 3 - Hazards Identification, Including Emergency Overview
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Health Hazards Acute & Chronic: EYE:NOT EXPECTED TO CAUSE PRLNG/SIGNIFICANT IRRIT. SKIN:NOT EXPECTED TO CAUSE PRLNG/SIGNIFICANT IRRIT. TOX HAS NOT BEEN DETERMINED. HOWEVER, IT SHLD BE PRACT NON-TOX TO INTERNAL ORGANS. INHAL/ INGEST:T OX HAS NOT BEEN DETERMINED. HOWEVER, ITSHLD BE PRACT NON-TOX TO INTERNAL ORGANS. PROD CONTAINS PETRO (EFTS OF OVEREXP)

Signs & Symptoms of Overexposure:
HLTH HAZ:BASE OILS WHICH MAY BE REFINED BY VARIOUS PROCESSES INCL SEV SOLV EXTRACTION, SEV HYDROCRACKING/SEV HYDROTREATING. NONE OF THE OILS REQS CANCER WARNING UNDER OSHA STD (29 CFR 1910.1200).

Medical Conditions Aggravated by Exposure:
NONE SPECIFIED BY MANUFACTURER.

LD50 LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.

Route of Entry Indicators:
Inhalation: YES
Skin: NO
Ingestion: NO

Carcenogenicity Indicators
NTP: NO
IARC: NO
OSHA: NO

Carcinogenicity Explanation: NOT RELEVANT

Section 4 - First Aid Measures
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

First Aid:
EYE:FLUSH W/FRESH WATER FOR @ LST 15 MINS. REMOVE CONT LENSES IF WORN. SKIN:WASH THORO W/SOAP & WATER. REMOVE & WASH CONTAM CLTHG. INHAL:

REMOVE TO FRESH AIR. SUPPORT BRTHG (GIVE O*2/ARTF RESP) (FP N). INGEST:GIVE WATER/MILK TO DRINK & TELEPHONE FOR MED ADVICE. CONSULT MED PERS BEFORE INDUCING VOMIT. IF MED ADVICE CANNOT BE OBTAINED, THEN TAKE PERS & PROD CNTNR TO NEAREST MED EMER TREATMENT(SUPDAT)

Section 5 - Fire Fighting Measures
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Fire Fighting Procedures:
WEAR NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FP N).
Unusual Fire or Explosion Hazard:
COMBUSTION PRODUCTS:NORMAL COMBUSTION FORMS CARBON DIOXIDE, WATER VAPOR & MAY PRODUCE OXIDES OF NITROGEN. INCOMPLETE COMBUSTION CAN PRODUCE CARBON MONOXIDE.
Extinguishing Media:
CO*2, DRY CHEMICAL, FOAM & WATER FOG.
Flash Point: Flash Point Text: 392F,200C

Autoignition Temperature:
Autoignition Temperature Text: N/A
Lower Limit(s): N/A
Upper Limit(s): N/A

Section 6 - Accidental Release Measures
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Spill Release Procedures:
THIS MATERIAL IS NOT EXPECTED TO PRESENT ANY ENVIRONMENTAL PROBLEMS OTHER THAN THOSE ASSOCIATED W/OIL SPILLS. CLEAN UP SPILLS IMMEDIATELY.

Section 7 - Handling and Storage
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Handling and Storage Precautions:

Other Precautions:

Section 8 - Exposure Controls & Personal Protection
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Repiratory Protection:

USE NIOSH/MSHA APPROVED RESPIRATOR APPROPRIATE FOR EXPOSURE OF CONCERN (FP N). NO SPECIAL RESPIRATORY PROTECTION IS NORMALLY REQUIRED.
Ventilation:
NO SPECIAL VENTILATION IS NECESSARY.
Protective Gloves:
IMPERVIOUS GLOVES (FP N).
Eye Protection: CHEMICAL WORKERS GOGGLES (FP N).
Other Protective Equipment: SKIN CONTACT CAN BE MINIMIZED BY WEARING PROTECTIVE CLOTHING.
Work Hygenic Practices: NONE SPECIFIED BY MANUFACTURER.
Supplemental Health & Safety Information: FIRST AID PROC:CENTER OR HOSPITAL.

Section 9 - Physical & Chemical Properties
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

HCC:
NRC/State License Number:
Net Property Weight for Ammo:
Boiling Point: Boiling Point Text: N/A
Melting/Freezing Point: Melting/Freezing Text: N/A
Decomposition Point: Decomposition Text: N/K
Vapor Pressure: N/A **Vapor Density:** N/A
Percent Volatile Organic Content:
Specific Gravity: 1.08
Volatile Organic Content Pounds per Gallon:
pH: N/K
Volatile Organic Content Grams per Liter:
Viscosity: N/P
Evaporation Weight and Reference: NOT APPLICABLE
Solubility in Water: INSOLUBLE
Appearance and Odor: DARK GREEN GREASE.
Percent Volatiles by Volume: N/A
Corrosion Rate: N/K

Section 10 - Stability & Reactivity Data
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Stability Indicator: YES
Materials to Avoid:
MAY REACT W/STRONG OXIDIZING AGENTS, SUCH AS CHLORATES, NITRATES, PEROXIDES, ETC.
Stability Condition to Avoid:
NONE SPECIFIED BY MANUFACTURER.

Hazardous Decomposition Products:
NOT APPLICABLE
Hazardous Polymerization Indicator: NO
Conditions to Avoid Polymerization:
NOT RELEVANT

Section 11 - Toxicological Information
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Toxicological Information:
N/P

Section 12 - Ecological Information
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Ecological Information:
N/P

Section 13 - Disposal Considerations
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Waste Disposal Methods:
PLACE CONTAMINATED MATERIALS IN DISPOSABLE CONTAINERS & DISPOSE OF IN A MANNER CONSISTENT W/APPLICABLE REGULATIONS. CONTACT LOCAL, STATE & FEDERAL ENVIRONMENTAL OR HEALTH AUTHORITIES FOR APPROVED DISP OSAL OF THIS MATERIAL.

Section 14 - MSDS Transport Information
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Transport Information:
N/P

Section 15 - Regulatory Information
RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

SARA Title III Information:
N/P
Federal Regulatory Information:
N/P
State Regulatory Information:
N/P

Section 16 - Other Information

RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411

Other Information:
N/P

HAZCOM Label Information

Product Identification: RPM AUTOMOTIVE GREASE EP NLGI 2, CPS250411
CAGE: 0AHD1
Assigned Individual: N
Company Name: CHEVRON ENVIRONMENTAL HEALTH CENTER INC
Company PO Box: 4054
Company Street Address1: 15299 SAN PABLO AVE
Company Street Address2: RICHMOND, CA 94804 US
Health Emergency Telephone: 800-457-2022;800-424-9300(CHEMTREC)
Label Required Indicator: Y
Date Label Reviewed: 01/12/1993
Status Code: C
Manufacturer's Label Number:
Date of Label: 01/12/1993
Year Procured: N/K
Organization Code: G
Chronic Hazard Indicator: N
Eye Protection Indicator: YES
Skin Protection Indicator: YES
Respiratory Protection Indicator: YES
Signal Word: CAUTION
Health Hazard: None
Contact Hazard: None
Fire Hazard: Slight
Reactivity Hazard: None

8/8/2002 7:18:59 PM

AMOCO OIL -- HYDRAULIC FLUID - HYDRAULIC FLUID, PETROLEUM BASE
MATERIAL SAFETY DATA SHEET
NSN: 9150001181112
Manufacturer's CAGE: 15965
Part No. Indicator: A
Part Number/Trade Name: HYDRAULIC FLUID

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General Information

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Item Name: HYDRAULIC FLUID, PETROLEUM BASE
Company's Name: AMOCO OIL CO
Company's Street: 200 EAST RANDOLPH DRIVE
Company's City: CHICAGO
Company's State: IL
Company's Country: US
Company's Zip Code: 60601
Company's Emerg Ph #: 800-447-8735, CHEMTREC 800-424-9300
Company's Info Ph #: 312-856-3907
Distributor/Vendor # 1: FERGUSSON ALEX C CO ( )
Distributor/Vendor # 1 Cage: 72391
Distributor/Vendor # 2: MASSEY-FERGUSON INC. GEAR AND SHIFT PLAN
Distributor/Vendor # 2 Cage: 14398
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 005
Status: SE
Date MSDS Prepared: 24JUL89
Safety Data Review Date: 13NOV91
Supply Item Manager: CX
MSDS Preparer's Name: GERALD BRESNICK
MSDS Serial Number: BLHFX
Spec Type, Grade, Class: TYPE II
Hazard Characteristic Code: N1
Unit Of Issue: DR
Unit Of Issue Container Qty: 55.0 GALLONS
Type Of Container: DRUM
Net Unit Weight: 407.6 LBS

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Ingredients/Identity Information

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Proprietary: NO
Ingredient: REFINED HEAVY PARAFFINIC DISTILLATES
Ingredient Sequence Number: 01
NIOSH (RTECS) Number: 1003331RP
CAS Number: 64741-88-4
OSHA PEL: 5 MG/M3 (OIL MIST)

ACGIH TLV: 5 MG/M3 (OIL MIST)
Other Recommended Limit: NONE SPECIFIED

Proprietary: NO
Ingredient: ZINC DIALKYL DITHIOPHOSPHATE
Ingredient Sequence Number: 02
NIOSH (RTECS) Number: 1001213ZD
CAS Number: 68457-79-4
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE SPECIFIED

Physical/Chemical Characteristics

Appearance And Odor: DARK OILY WITH MINERAL OIL ODOR
Specific Gravity: 0.890
Decomposition Temperature: UNKNOWN
Solubility In Water: NEGLIGIBLE,<0.1%
Corrosion Rate (IPY): UNKNOWN

Fire and Explosion Hazard Data

Flash Point: >90F,>32C
Flash Point Method: COC
Extinguishing Media: USE WATER FOG, CARBON DIOXIDE, FOAM, DRY CHEMICAL, EARTH OR SAND.
Special Fire Fighting Proc: WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND FULL FACED SELF CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WI WATER SPRAY. CONTAIN RUNOFF.
Unusual Fire And Expl Hazrds: DENSE SMOKE

Reactivity Data

Stability: YES
Cond To Avoid (Stability): OPEN FLAMES
Materials To Avoid: STRONG OXIDIZERS SUCH AS HYDROGEN PEROXIDE, BROMINE, AND CHROMIC ACID.
Hazardous Decomp Products: CARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF PHOSPHOROUS, SULFUR, AND POSSIBLY HYDROGEN SULFIDE.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT APPLICABLE

Health Hazard Data

LD50-LC50 Mixture: UNKNOWN
Route Of Entry - Inhalation: NO

Route Of Entry - Skin: YES
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: ACUTE-INHALATION OF MIST MAY CAUSE IRRITATION. INGESTION:NO ILL EFFECTS EXPECTED. MINUTE AMOUNTS ASPIRATED INTO LUNGS MAY CAUSE PULMONARY INJURY. EYE: IRRITATION. SKIN: NOT NORMALLY EXPECTED TO CAUSE ILL EFFECTS. CHRONIC-PROLONGED/REPEATED SKIN CONTACT MAY CAUSE IRRITATION.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NONE OF THE COMPOUNDS IN THIS PRODUCT IS LISTED BY IARC, NTP, OR OSHA AS A CARCINOGEN.
Signs/Symptoms Of Overexp: SKIN AND EYE IRRITATION.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR 15 MINUTES HOLDING EYELIDS OPEN. GE MEDICAL ATTENTION. SKIN: REMOVE EXCESS WITH CLOTH OR PAPER. WASH THOUROUGHLY WITH SOAP AND WATER. INGESTION: GET IMMEDIATE MEDICAL ATTENTION. DO NOT INDUCE VOMITING.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: RECOVER BULK OF MIXTURE INTO ANOTH CONTAINER. ABSORB RESIDUE WITH AN INERT MATERIAL SUCH AS EARTH, SAND, OR VERMICULITE. SWEEP UP AND DISPOSE AS SOLID WASTE.
Neutralizing Agent: NOT APPLICABLE.
Waste Disposal Method: DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS.
Precautions-Handling/Storing: KEEP CONTAINER CLOSED UNTIL READY FOR USE.
Other Precautions: NONE

Control Measures

Respiratory Protection: NONE REQUIRED UNDER NORMAL USE. IF MIST IS BEING GENERATED OR VAPORS ARE BEING PRODUCED AT HIGH TEMPERATURES, USE NIOSH APPROVED ORGANIC VAPOR MASK.
Ventilation: NONE
Protective Gloves: NONE
Eye Protection: SAFETY GOGGLES WITH OPTIONAL FACE SHIELD
Other Protective Equipment: NONE
Work Hygienic Practices: OBSERVE GOOD PERSONAL HYGIENE PRACTICES AND RECOMMENDED PROCEDURES. DO NOT WEAR CONTAMINATED CLOTHING OR FOOTWEAR.
Suppl. Safety & Health Data: NONE

Transportation Data

Trans Data Review Date: 91317

DOT PSN Code: ZZZ
DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
IMO PSN Code: ZZZ
IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION
IATA PSN Code: ZZZ
IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
AFI PSN Code: ZZZ
AFI Prop. Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
Additional Trans Data: NON-HAZARDOUS PER MFR.

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Disposal Data

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Label Data

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Label Required: NO
Technical Review Date: 13NOV91
MFR Label Number: UNDATED
Label Status: F
Common Name: HYDRAULIC FLUID
Signal Word: CAUTION!
Acute Health Hazard-Slight: X
Contact Hazard-Slight: X
Fire Hazard-Slight: X
Reactivity Hazard-None: X
Special Hazard Precautions: ACUTE-INGESTION:NO ILL EFFECTS EXPECTED. INHALATION OF MIST MAY CAUSE IRRITATION. MINUTE AMOUNTS ASPIRATED INTO LUNGS MAY CAUSE PULMONARY INJURY. EYE: IRRITATION. SKIN: NOT NORMALLY EXPECTED TO CAUSE ILL EFFECTS. CHRONIC-PROLONGED/REPEATED SKIN CONTACT MAY CAUSE IRRITATION,DERMATITIS. RECOVER FREE PRODUCT, OR ABSORB WITH DIATOMACEOUS EARTH OR OTHER INERT MATERIAL. STORE IN APPROPRIATE CONTAINER FOR DISPOSAL. AVOID STORAGE NEAR OPEN FLAME OR OTHER SOURCES OF IGNITION, AND STRONG OXIDANTS. DANGEROUS TO REUSE EMPTY CONTAINER.FIRST AID-EYE:FLUSH WITH WATER FOR 15 MIN. SKIN:WASH WITH SOAP AND WATER. INGESTION:CONSULT A PHYSICIAN.
Protect Eye: Y
Protect Skin: Y
Label Name: AMOCO OIL CO
Label Street: 200 EAST RANDOLPH DRIVE
Label City: CHICAGO
Label State: IL
Label Zip Code: 60601
Label Country: US
Label Emergency Number: 800-447-8735, CHEMTREC 800-424-9300
Year Procured: 1991

HYDROCHLORIC ACID, 33 - 40%

MSDS Number: H3880 --- *Effective Date: 11/17/99*

1. Product Identification

Synonyms: Muriatic acid; hydrogen chloride, aqueous
CAS No.: 7647-01-0
Molecular Weight: 36.46
Chemical Formula: HCl
Product Codes:
J.T. Baker: 5367, 5537, 5575, 5800, 5814, 5839, 6900, 7831, 9529, 9530, 9534, 9535, 9536, 9537, 9538, 9539, 9540, 9544, 9548
Mallinckrodt: 2062, 2612, 2624, 2626, 5587, H611, H613, H615, V078, V628

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Hydrogen Chloride	7647-01-0	33 - 40%	Yes
Water	7732-18-5	60 - 67%	No

3. Hazards Identification

Emergency Overview

POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR INHALED. INHALATION MAY CAUSE LUNG DAMAGE.

J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Poison)
Flammability Rating: 0 - None

Reactivity Rating: 2 - Moderate
Contact Rating: 3 - Severe (Corrosive)
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: White (Corrosive)

Potential Health Effects

Inhalation:
Corrosive! Inhalation of vapors can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases, pulmonary edema, circulatory failure, and death.
Ingestion:
Corrosive! Swallowing hydrochloric acid can cause immediate pain and burns of the mouth, throat, esophagus and gastrointestinal tract. May cause nausea, vomiting, and diarrhea. Swallowing may be fatal.
Skin Contact:
Corrosive! Can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and discolor skin.
Eye Contact:
Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.
Chronic Exposure:
Long-term exposure to concentrated vapors may cause erosion of teeth. Long term exposures seldom occur due to the corrosive properties of the acid.
Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye disease may be more susceptible to the effects of this substance.

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4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion:
DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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5. Fire Fighting Measures

Fire:
Extreme heat or contact with metals can release flammable hydrogen gas.
Explosion:
Not considered to be an explosion hazard.
Fire Extinguishing Media:
If involved in a fire, use water spray. Neutralize with soda ash or slaked lime.
Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Structural firefighter's protective clothing is ineffective for fires involving hydrochloric acid. Stay away from ends of tanks. Cool tanks with water spray until well after fire is out.

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6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

J. T. Baker NEUTRASORB(R) or TEAM(R) 'Low Na+' acid neutralizers are recommended for spills of this product.

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7. Handling and Storage

Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat, water, and incompatible materials. Do not wash out container and use it for other purposes. When diluting, the acid should always be added slowly to water and in small amounts. Never use hot water and never add water to the acid. Water added to acid can cause uncontrolled boiling and splashing. When opening metal containers, use non-sparking tools because of the possibility of hydrogen gas being present. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
5 ppm Ceiling
-ACGIH Threshold Limit Value (TLV):
5 ppm Ceiling

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, a full facepiece respirator with an acid gas cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection:
Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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9. Physical and Chemical Properties

Appearance:
Colorless, fuming liquid.
Odor:
Pungent odor of hydrogen chloride.
Solubility:
Infinite in water with slight evolution of heat.
Density:
1.18
pH:
For HCL solutions: 0.1 (1.0 N), 1.1 (0.1 N), 2.02 (0.01 N)
% Volatiles by volume @ 21C (70F):
100
Boiling Point:
53C (127F) Azeotrope (20.2%) boils at 109C (228F)
Melting Point:
-74C (-101F)
Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
190 @ 25C (77F)
Evaporation Rate (BuAc=1):
No information found.

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10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Containers may burst when heated.
Hazardous Decomposition Products:
When heated to decomposition, emits toxic hydrogen chloride fumes and will react with water or steam to produce heat and toxic and corrosive fumes. Thermal oxidative decomposition produces toxic chlorine fumes and explosive hydrogen gas.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
A strong mineral acid, concentrated hydrochloric acid is incompatible with many substances and highly reactive with strong bases, metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials. Incompatible with materials such as cyanides, sulfides, sulfites, and formaldehyde.
Conditions to Avoid:
Heat, direct sunlight.

---

11. Toxicological Information

Inhalation rat LC50: 3124 ppm/1H; oral rabbit LD50: 900 mg/kg (Hydrochloric acid concentrated); investigated

as a tumorigen, mutagen, reproductive effector.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Hydrogen Chloride (7647-01-0)	No	No	3
Water (7732-18-5)	No	No	None

12. Ecological Information

Environmental Fate:
When released into the soil, this material is not expected to biodegrade. When released into the soil, this material may leach into groundwater.
Environmental Toxicity:
This material is expected to be toxic to aquatic life.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: HYDROCHLORIC ACID
Hazard Class: 8
UN/NA: UN1789
Packing Group: II
Information reported for product/size: 475LB

International (Water, I.M.O.)

Proper Shipping Name: HYDROCHLORIC ACID
Hazard Class: 8
UN/NA: UN1789
Packing Group: II
Information reported for product/size: 475LB

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\--------------------------------

Ingredient	TSCA	EC	Japan	Australia
Hydrogen Chloride (7647-01-0)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\--------------------------------

		--Canada--		
Ingredient	Korea	DSL	NDSL	Phil.
Hydrogen Chloride (7647-01-0)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\----------------

	-SARA 302-		------SARA 313------	
Ingredient	RQ	TPQ	List	Chemical Catg.
Hydrogen Chloride (7647-01-0)	5000	500*	Yes	No
Water (7732-18-5)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\----------------

		-RCRA-	-TSCA-
Ingredient	CERCLA	261.33	8(d)
Hydrogen Chloride (7647-01-0)	5000	No	No

Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: Yes

SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No

Reactivity: No (Mixture / Liquid)

Australian Hazchem Code: 2R
Poison Schedule: No information found.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

---

16. Other Information

NFPA Ratings: Health: **3** Flammability: **0** Reactivity: **0**
Label Hazard Warning:
POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR INHALED. INHALATION MAY CAUSE LUNG DAMAGE.
Label Precautions:
Do not get in eyes, on skin, or on clothing.
Do not breathe vapor or mist.
Use only with adequate ventilation.
Wash thoroughly after handling.
Store in a tightly closed container.
Remove and wash contaminated clothing promptly.
Label First Aid:
In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.
Product Use:
Laboratory Reagent.
Revision Information:
No changes.
Disclaimer:
****
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****

Prepared by: Strategic Services Division
Phone Number: (314) 539-1600 (U.S.A.)

CORNELL

Material Safety Data Sheets

Division of Facilities Services

DOD Hazardous Material Information (ANSI Format)
For Cornell University Convenience Only

JET FUEL A

Section 1 - Product and Company Identification
JET FUEL A

Product Identification: JET FUEL A
Date of MSDS: 06/30/1994 **Technical Review Date:** 12/14/1994
FSC: 9130 **NIIN:** 00-359-2026
Submitter: D DG
Status Code: C
MFN: 01
Article: N
Kit Part: N

Manufacturer's Information

Manufacturer's Name: ULTRAMAR INC
Post Office Box: 93102
Manufacturer's Address1: 1111 WEST OCEAN BLVD SUITE 1400
Manufacturer's Address2: LONG BEACH, CA 90809-3102
Manufacturer's Country: US
General Information Telephone: 310-495-5300/5832
Emergency Telephone: 310-491-6795/310-435-5832
Emergency Telephone: 310-491-6795/310-435-5832
MSDS Preparer's Name: N/P
Proprietary: N
Reviewed: Y
Published: Y
CAGE: 0VZA7
Special Project Code: N

Item Description

Item Name: TURBINE FUEL,AVIATION
Item Manager:
Specification Number: ASTM D1655
Type/Grade/Class: JET A
Unit of Issue: GL
Unit of Issue Quantity: X
Type of Container: BULK

Preparer Information

Preparer's Name: ULTRAMAR INC
Post Office Box: 93102
Preparer's Address1: 1111 WEST OCEAN BLVD SUITE 1400
Preparer's Address2: LONG BEACH, CA 90809-3102

Preparer's CAGE: 0VZA7
Assigned Individual: N

Contractor Information

Contractor's Name: ULTRAMAR INC
Post Office Box: 93102
Contractor's Address1: 1111 WEST OCEAN BLVD SUITE 1400
Contractor's Address2: LONG BEACH, CA 90809-3102
Contractor's Telephone: 310-495-5300
Contractor's CAGE: 0VZA7

Section 2 - Compositon/Information on Ingredients
JET FUEL A

Ingredient Name: ALIPHATIC PETROLEUM SOLVENT(JET FUEL A, C8-C16).
Ingredient CAS Number: 8008-20-6 **Ingredient CAS Code:** M
RTECS Number: OA5500000 **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: 99.83
% Enviromental Weight:
Other REC Limits: NONE RECOMMENDED
OSHA PEL: NOT ESTABLISHED **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT ESTABLISHED **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical: N

Section 3 - Hazards Identification, Including Emergency Overview
JET FUEL A

Health Hazards Acute & Chronic: MAY IRRIT RESP TRACT & EYES.MAY DAMAGE NERVES & AFFECT CENTRAL NERVOUS SYSTEM. INHAL:NARCOTIC,IRRIT UPPER RESP TRACT,HI CONCEN RESULTS IN CHEM PNEUITIS,CNS DEPRESSION.SKIN:NO INFO AVAILABLE ON SIGNIFI CANT ADVERSE EFFECTS.CHRONIC CONTACT:DEFAT,DRYNESS,DERM.INGEST: MOUTH/THROAT/STOMACEH IRRIT,LUNG & KIDNEY DAMAGE.

Signs & Symptoms of Overexposure:
INHAL:LACK OF APPETITE, NAU, HEADACHE, WEAKNESS, DRUNKENESS, GIDDINESS, LUNG DAMAGE, UNCONSCIOUSNESS, ANXIETY, NERVE DAMAGE. SKIN:REDNESS, SWELLLING, LACK OF APPETITE. INGEST:COUGHING, NAU, VOMIT, DIA RR, DIFFICULTY BREATHING, DRUNKENESS, BLUISH SKIN COLOR, LUNG & KIDNEY DAMAGE. DEATH/ FATAL. CNS DEPRESSION.

Medical Conditions Aggravated by Exposure:
PERSONS WITH CHRONIC SKIN OR RESP DISEASE. TARGET ORGANS:CENTRAL NERVOUS SYSTEM DEPRESSANT.

LD50 LC50 Mixture: LD50 ORAL, RAT 25GM/KG

Route of Entry Indicators:
Inhalation: YES
Skin: YES
Ingestion: YES

Carcenogenicity Indicators
NTP: NO
IARC: NO
OSHA: NO

Carcinogenicity Explanation: PER MSDS:CARCINOGEN STATUS:OSHA/NTP/IARC:NO. CARCINOGEN STATUS:NONE.

Section 4 - First Aid Measures
JET FUEL A

First Aid:
INHAL:REMOVE TO FRESH AIR. IMMED.PERFORM ART RESP IF NECESSARY.MAINTAIN AIRWAY,BLOOD PRESSURE,RESP.KEEP WARM/@REST.TREAT SYMPTOMATICALLY/ SUPPORTIVELY.QUAL MED PER SHOULD CONSIDER GIVING OXY.SKIN:REMOV E CONTAMIN CLOTH/SHOES IMMED.WASH W/SOAP OR MILD DETERGENT & LG AMTS OF WATER @ LEAST 15-20MINS.EYE:WASH IMMED W/LG AMTS OF WATER OR NORMAL SALINE LIFTING EYELIDS @ LEAST 15-20MINS.INGEST:SEE SUPPLEM

Section 5 - Fire Fighting Measures
JET FUEL A

Fire Fighting Procedures:
MOVE CNTNR FROM FIRE W/O RISK.COOL CNTNR SIDES EXPO TO FLAMES W/WATER. HUGE FIRE IN CARGO:UNMANNED HOSE HOLDER/MONITOR NOZ.LEAVE IMMED IF RISING SOUND FROM VE
Unusual Fire or Explosion Hazard:
MODERATE FIRE HAZ WHEN EXPO TO HEAT/FLAME.VAP HEAVIER THAN AIR;MAY TRAVEL CONSIDERABLE DISTANCE TO IGN SOURCE & FLASHBACK.VAP/AIR MIXTURES ARE EXPLO >FLASHPOINT
Extinguishing Media:
DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR REGULAR FOAM.LG FIRES: WATER SPRAY, FOG OR REGULAR FOAM.FLAMM CLASS:II(OSHA)
Flash Point: Flash Point Text: 120F,49C

Autoignition Temperature:
Autoignition Temperature Text: N/K
Lower Limit(s): 0.7
Upper Limit(s): N/K

Section 6 - Accidental Release Measures
JET FUEL A

Spill Release Procedures:
SHUT OFF IGN SOURCES.STOP LEAK W/O RISK.USE WATERSPRAY TO REDUCE VAP.SM: TAKE UP W/SAND/OTHER ABSORBENT MATL.PLACE INTO CNTNR.LG:DIKE FOR LATER DISPOSAL.NO SMOKING/FLAMES/FLARES IN HAZ AREA.KEEP PEOPLE AWAY.ISOLATE AREA.

Section 7 - Handling and Storage
JET FUEL A

Handling and Storage Precautions:

Other Precautions:

Section 8 - Exposure Controls & Personal Protection
JET FUEL A

Repiratory Protection:
WEAR SPECIFIC RESP BASED ON CONTAMIN LEVELS IN WORKPLACE,SPECIFIC

OPERATOR,DOES NOT EXCEED WORKING LIMITS OF RESP & APPROVED BY NIOSH/ MSHA.REQUIRED FOR FIREFIGHTING & OTHER IMMED DANGEROUS TO LIFE/HEA LTH CONDITIONS.

Ventilation:
PROVIDE LOC EXHA/GEN DILUTION VENTI TO MEET PUBLISHED EXPO LIMITS. EXPLOSION-PROOF IF EXPLO CONCEN OF DUST/VAP/FUME PRESE

Protective Gloves:
IMPERVIOUS GLOVES.

Eye Protection: SPLASH-PROOF,DUST-RESISTANT SAF GOGGLES

Other Protective Equipment: EYEWASH FOUNTAIN.WEAR APPROPRIATE PROT IMPERVIOUS CLOTH/EQPMT TO PREVENT SKIN CONTACT.

Work Hygenic Practices: WASH THOROUGHLY AFT HANDLING. WASH CONTAMIN CLOTH PRIOR TO REUSE.

Supplemental Health & Safety Information: 1STAID:PREVENT ASPIRATION.GASTRIC LAVAGE W/CUFFED ENDOTRACHEAL TUBE IN PLACE SHOULD BE DONE W/IN 15MINS. ABSENCE OF DEPRESSION/CONVULSIONS/IMPAIRED GAG REFLEX,EMESIS CAN BE INDUCED USING SYRUP OF IPECA C W/O INCREASING HAZ OF ASPIRATION.TREAT SYMPTOMATICALLY/SUPPORTIVELY.IN ALL CASES GET MED ATTN.

Section 9 - Physical & Chemical Properties
JET FUEL A

HCC: F4
NRC/State License Number: N/R
Net Property Weight for Ammo: N/R
Boiling Point: Boiling Point Text: >315F,>157C
Melting/Freezing Point: Melting/Freezing Text: -40F,-40C
Decomposition Point: Decomposition Text: N/K
Vapor Pressure: N/K **Vapor Density:** >1
Percent Volatile Organic Content:
Specific Gravity: 0.62
Volatile Organic Content Pounds per Gallon:
pH: N/K
Volatile Organic Content Grams per Liter:
Viscosity: N/K
Evaporation Weight and Reference: N/K
Solubility in Water: INSOLUBLE
Appearance and Odor: CLEAR,WHITE OR LIGHT STRAW-COLORED LIQUID WITH ODOR LIKE DEROSENE.
Percent Volatiles by Volume: NIL
Corrosion Rate: N/K

Section 10 - Stability & Reactivity Data

JET FUEL A

Stability Indicator: YES
Materials to Avoid:
OXIDIZERS (STRONG):FIRE/EXPLOSION HAZARD.
Stability Condition to Avoid:
AVOID CONTACT W/HEAT/SPARKS/FLAMES/OTHER SOURCES OF IGNITION.AVOID OVERHEATING CNTNRS.AVOID CONTAMIN OF WATER SOURCES.
Hazardous Decomposition Products:
THERMAL DECOMP PROD MAY INCLUDE TOXIC OXIDES OF CARBON.
Hazardous Polymerization Indicator: NO
Conditions to Avoid Polymerization:
NOT APPLICABLE

Section 11 - Toxicological Information
JET FUEL A

Toxicological Information:
N/P

Section 12 - Ecological Information
JET FUEL A

Ecological Information:
N/P

Section 13 - Disposal Considerations
JET FUEL A

Waste Disposal Methods:
OBSERVE ALL LOCAL, STATE AND FEDERAL REGULATIONS WHEN DISPOSING OF THIS SUBSTANCE.DISPOSAL MUST BE IAW STANDARDS APPLICABLE TO GENERATORS OF HAZ WASTE 40CFR262. EPA HAZ WASTE #:D001. 100 LBS CERCLA SE C 103 RQ.

Section 14 - MSDS Transport Information
JET FUEL A

Transport Information:
N/P

Section 15 - Regulatory Information
JET FUEL A

SARA Title III Information:

N/P
Federal Regulatory Information:
N/P
State Regulatory Information:
N/P

Section 16 - Other Information
JET FUEL A

Other Information:
N/P

HMIS Transportation Information

Product Identification: JET FUEL A
Transporation ID Number: 70119
Responsible Party CAGE: 0VZA7
Date MSDS Prepared: 06/30/1994
Date MSDS Reviewed: 12/14/1994
MFN: 12/14/1994
Submitter: D DG
Status Code: C

Container Information
- **Unit of Issue:** GL
- **Container Quantity:** X
- **Type of Container:** BULK
- **Net Unit Weight:** BULK

Article without MSDS: N
Technical Entry NOS Shipping Number:
Radioactivity:
Form:
Net Explosive Weight:
Coast Guard Ammunition Code:
Magnetism: N/P
AF MMAC Code:
DOD Exemption Number:
Limited Quantity Indicator:
Multiple Kit Number: 0
Kit Indicator: N
Kit Part Indicator: N
Review Indicator: Y
Additional Data:
PER MSDS:US DOT SHIPPING NAME:FUEL,AVIATIN,TURBINE ENGINE, UN1863, 3 FLAMM

LIQ, PG I. NO CODE FOR IA TA THEREFORE USED CODE FOR PG II.

Department of Transportation Information

DOT Proper Shipping Name: FUEL, AVIATION, TURBINE ENGINE
DOT PSN Code: GNY
Symbols:
DOT PSN Modifier:
Hazard Class: 3
UN ID Number: UN1863
DOT Packaging Group: I
Label: FLAMMABLE LIQUID
Special Provision(s): T7
Packaging Exception: 150
Non Bulk Packaging: 201
Bulk Packaging: 243
Maximimum Quanity in Passenger Area: 1 L
Maximimum Quanity in Cargo Area: 30 L
Stow in Vessel Requirements: E
Requirements Water/Sp/Other:

IMO Detail Information

IMO Proper Shipping Name: FUEL, AVIATION, TURBINE ENGINE
IMO PSN Code: HNV
IMO PSN Modifier:
IMDG Page Number: 3271
UN Number: 1863
UN Hazard Class: 3.2
IMO Packaging Group: I/II
Subsidiary Risk Label: -
EMS Number: 3-07
Medical First Aid Guide Number: 311

IATA Detail Information

IATA Proper Shipping Name: FUEL, AVIATION, TURBINE ENGINE
IATA PSN Code: MMA
IATA PSN Modifier:
IATA UN Id Number: 1863
IATA UN Class: 3
Subsidiary Risk Class:
UN Packaging Group: II
IATA Label: FLAMMABLE LIQUID
Packaging Note for Passengers: 305
Maximum Quantity for Passengers: 5L
Packaging Note for Cargo: 307
Maximum Quantity for Cargo: 60L

Exceptions:

AFI Detail Information

AFI Proper Shipping Name: FUEL, AVIATION, TURBINE ENGINE
AFI Symbols:
AFI PSN Code: MMB
AFI PSN Modifier:
AFI UN Id Number: UN1863
AFI Hazard Class: 3
AFI Packing Group: I
AFI Label:
Special Provisions: P3
Back Pack Reference: A7.3

HAZCOM Label Information

Product Identification: JET FUEL A
CAGE: 0VZA7
Assigned Individual: N
Company Name: ULTRAMAR INC
Company PO Box: 93102
Company Street Address1: 1111 WEST OCEAN BLVD SUITE 1400
Company Street Address2: LONG BEACH, CA 90809-3102 US
Health Emergency Telephone: 310-491-6795/310-435-5832
Label Required Indicator: Y
Date Label Reviewed: 12/14/1994
Status Code: C
Manufacturer's Label Number:
Date of Label: 12/14/1994
Year Procured: N/K
Organization Code: F
Chronic Hazard Indicator: N/P
Eye Protection Indicator: YES
Skin Protection Indicator: YES
Respiratory Protection Indicator: YES
Signal Word: WARNING
Health Hazard: Moderate
Contact Hazard: Slight
Fire Hazard: Moderate
Reactivity Hazard: None

8/7/2002 10:41:32 PM

Ciba Specialty Chemicals Canada Inc.

Material Safety Data Sheet

WHMIS / ANSI Z400.1-2004 Compliant *MSDS date: 10-Apr-2006*

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **MAGNAFLOC 156**
Product Number: **2331043**

Chemical Family: Copolymer of sodium acrylate and acrylamide.

Intended Use: Flocculant

Manufacturer/Supplier:
Ciba Specialty Chemicals Canada Inc.
2626 Argentia Road
Mississauga, Ontario
L5N 5N2
8am - 5pm Phone Number: 1-866-679-2422

CANUTEC Emergency: (613) 996-6666
Emergency 24-Hour Health/Environmental Phone: 1-800-873-1138

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Signal Word: CAUTION!
Physical Form: Granular Powder
Color: White
Odor: Odorless
Health: This product has no known adverse effect on human health.
Physical Hazards: Slip hazard when wet. , Organic powders may be capable of generating static discharges and creating explosive mixtures in air. Handle with caution, Refer to MSDS Section 7 for Dust Explosion information. .

WHMIS Designation: This product is not WHMIS controlled.

Potential Health Effects: Eye contact may cause slight irritation and/or redness. Repeated or prolonged exposure may cause slight skin irritation. Inhaled dust may cause some respiratory irritation.

Primary Route(s) of Entry: Inhalation, Ingestion, Skin, Eyes.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component Information: This material does not contain any hazardous components that are reportable according to WHMIS criteria.

4. FIRST AID MEASURES

Eyes: Immediately flush the eye(s) with lukewarm, gently flowing water for 15 minutes or until the chemical is removed. Get medical attention.

Skin: Wash off immediately with soap and plenty of water. Get medical attention if irritation occurs. If clothing is contaminated, remove and launder before reuse.

Inhalation: Remove to fresh air, if not breathing give artificial respiration. If breathing is difficult, give oxygen and get immediate medical attention.

Ingestion: Do not induce vomiting. If vomiting occurs naturally, have casualty lean forward to reduce the risk of aspiration. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

Fire Fighting Measures: Standard procedure for chemical fires.

Suitable Extinguishing Media: Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: Wear self-contained breathing apparatus and protective suit.

Unusual hazards: The product is slippery when wet. Restrict pedestrian and vehicular traffic in areas where slip hazard may exist. Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition.

Hazardous Combustion Products: Burning may produce oxides of carbon or nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Cleanup Instructions: Wear suitable protective equipment. Product becomes slippery and difficult to handle when wet. Avoid dust formation. Sweep up and shovel into suitable containers for disposal. Should not be released into the environment. Clean up promptly.

7. HANDLING AND STORAGE

Handling: As with all industrial chemicals, use good industrial practices when handling. Avoid eye, skin, and clothing contact. Do not inhale. Do not taste or swallow. Use only with adequate ventilation. Slip hazard when wet. Clean up spills promptly

Storage: Keep containers tightly closed in a cool, well-ventilated place. Avoid wet, damp or humid conditions, temperature extremes and ignition sources. Avoid buildup of dust.

Explosion Hazards: Avoid creating dusty conditions. Organic powders may be capable of generating static discharges and creating explosive mixtures in air. Handle with caution.

For Industrial Use Only

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines:

There are no OSHA or ACGIH exposure guidelines available for component(s) in this product.

Personal Protective Equipment

Eye/Face Protection:	Wear safety glasses or goggles to protect against dust particles.
Skin Protection:	Wear chemical resistant gloves and protective clothing.
Respiratory Protection:	Use NIOSH approved respirator as needed to mitigate exposure.
Engineering Controls:	Work in well ventilated areas. Do not breathe dust. Local exhaust/ventilation recommended.
Other Protective Equipment:	Eye bath and washing facilities.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Granular Powder
Color:	White
Odor:	Odorless.
Freezing/Melting Point:	Not determined
Solubility in water:	Soluble, solubility limited by viscosity
Vapor Density:	Not applicable
Vapor Pressure:	Not applicable
Density:	Not determined
Specific Gravity:	0.75
pH:	Not determined
Percent Volatile:	Not determined
VOC:	Not determined
Partition Coefficient (Octanol/Water):	Not determined
Decomposition Temperature:	Not determined
Flammability Limits in Air:	
Flash point:	Not applicable
Test Method (for Flash Point):	Not applicable

10. STABILITY AND REACTIVITY

Stability:	Stable.
Conditions to Avoid:	Avoid static discharges and sources of ignition. Avoid wet and humid conditions. Avoid high temperatures.
Incompatibility:	Strong oxidizing agents. (may degrade polymer)
Hazardous Decomposition Products:	No decomposition expected under normal storage conditions.
Possibility of Hazardous Reactions:	None expected.

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity:	Not determined.
Acute Dermal Toxicity:	Not determined
Acute Inhalation Toxicity:	Not determined.
Eye Irritation:	Not determined.
Skin Irritation:	Not determined.
Skin Sensitization:	Not determined
Respiratory Sensitization:	Not determined
Carcinogenicity (IARC; NTP; OSHA; ACGIH):	None of the components in this product at concentrations greater than 0.1% are listed by IARC; NTP, OSHA or ACGIH as a carcinogen.
Mutagenicity:	No data for product. No effects anticipated.
Reproductive Toxicity:	No data for product. No effects anticipated.
Teratogenicity:	No data for product. No effects anticipated.
Neurotoxicity:	Not determined
Subacute Toxicity:	Not determined
Subchronic Toxicity:	Not determined
Chronic toxicity:	Not determined
Absorption / Distribution / Excretion / Metabolism:	Not determined
Additional Information:	Not determined

12. ECOLOGICAL INFORMATION

Toxicity to Fish:	LC50 230 mg/L 96 hour (Rainbow trout) (under static conditions in the presence of humic acid)
Toxicity to Invertebrates:	LC50 110 mg/L 48 hour (Ceriodaphnia dubia) (under static conditions in the presence of humic acid) EC50 3.6 mg/L 7 days (Ceriodaphnia dubia) (under static-renewel conditions in the presence of humic acid)
Toxicity to Algae:	Not determined
Toxicity to Sewage Bacteria:	Not determined
Activated Sludge Respiration Inhibition Test:	Not determined

Biochemical Oxygen Demand (BOD): Not determined

Chemical Oxygen Demand (COD): Not determined

Total Oxygen Demand (TOD): Not determined

Biodegradability: Not determined

Bioaccumulation: Not determined

Additional Environmental Data: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with local, state, provincial and federal regulations.

14. TRANSPORT INFORMATION

Transportation of Dangerous Goods (TDG):

Not regulated for transport by road or rail.

International Maritime Dangerous Goods (IMDG):

Not regulated for this mode of transport.

International Air Transportation Authority (IATA):

Not regulated for this mode of transport.

15. REGULATORY INFORMATION

Federal Regulations

Workplace Hazardous Materials Information System (WHMIS): This product is not WHMIS controlled.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Domestic Substance List (DSL) Status: All components either exempt or listed on the DSL.

International Regulations

TSCA Section 8(b) Inventory Status: All component(s) comprising this product are either exempt or listed on the TSCA inventory.

Chemical Weapons Convention (CWC): This product does not contain any component(s) listed under the Chemical Weapons Convention Schedule of Chemicals.

16. OTHER INFORMATION

Reason for revision: New MSDS Format.

Contact InformationSafety, Regulatory and Environmental: Marlene Dorcas (905) 812-7280

Disclaimer: The information contained herein is based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to such data or information. The user is responsible for determining whether the product is suitable for its intended conditions of use.

AMOCO OIL -- AMOCO LDO SG MOTOR OIL 10W-40
MATERIAL SAFETY DATA SHEET
NSN: 9150001160506
Manufacturer's CAGE: 15958
Part No. Indicator: A
Part Number/Trade Name: AMOCO LDO SG MOTOR OIL 10W-40

General Information

Company's Name: AMOCO OIL CO
Company's Street: 200 E RANDOLPH DR
Company's City: CHICAGO
Company's State: IL
Company's Country: US
Company's Zip Code: 60601
Company's Emerg Ph #: 800-447-8735;800-424-9300(CHEMTREC)
Company's Info Ph #: 312-856-3907
Record No. For Safety Entry: 003
Tot Safety Entries This Stk#: 008
Status: SMJ
Date MSDS Prepared: 02OCT89
Safety Data Review Date: 28MAR95
Supply Item Manager: S9G
MSDS Serial Number: BKMWP
Hazard Characteristic Code: N1

Ingredients/Identity Information

Proprietary: NO
Ingredient: REFINED HEAVY PARAFFINIC DISTILLATES (SOLVENT REFINED PARAFFINIC PETROLEUM OIL) PEL/TLV AS OIL MIST.
Ingredient Sequence Number: 01
NIOSH (RTECS) Number: 1003331RP
CAS Number: 64741-88-4
OSHA PEL: 5 MG/M3
ACGIH TLV: 5 MG/M3;10 MG/M3STEL

Physical/Chemical Characteristics

Appearance And Odor: PALE COLORED OILY LIQUID.
Specific Gravity: 0.88
Solubility In Water: <0.1%.

Fire and Explosion Hazard Data

Flash Point: 401F,205C
Flash Point Method: COC
Extinguishing Media: AGENTS APPROVED FOR CLASS B HAZARDS (E.G.,DRY

CHEMICAL, CARBON DIOXIDE, HALOGENATED AGENTS, FOAM, STEAM) OR WATER FOG.
Special Fire Fighting Proc: WEAR NIOSH/MSHA APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT (FP D).
Unusual Fire And Expl Hazrds: NONE.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): NONE SPECIFIED BY MANUFACTURER.
Materials To Avoid: NONE SPECIFIED BY MANUFACTURER.
Hazardous Decomp Products: INCOMPLETE BURNING CAN PRODUCE CO AND/OR CO2 AND OTHER HARMFUL PRODUCTS.
Conditions To Avoid (Poly): NONE SPECIFIED BY MANUFACTURER.

Health Hazard Data

LD50-LC50 Mixture: LD50:(ORL,RAT)5 G/KG; (DRM,RBT)2 G/KG.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: ACUTE:EYE/INHAL/INGEST:NO SIGNIFICANT HEALTH HAZARDS IDENTIFIED. SKIN:NONE EXPECTED FOR SINGLE SHORT-TERM EXPOSURES. PRLNGD/RPTD CONTACT MAY PRODUCE SOME IRRITATION. CAUTION! CONTINUOUS LONG-TERM CONTACT W/USED MOTOR OILS HAS CAUSED CANCER IN ANIMAL TESTS. (MFR.)
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT RELEVANT
Signs/Symptoms Of Overexp: NONE SPECIFIED BY MANUFACTURER.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
Emergency/First Aid Proc: EYE:FLUSH W/PLENTY OF WATER FOR AT LEAST 15 MINUTES. SKIN:NONE REQUIRED FOR UNUSED MOTOR OIL. CNTCT W/USED MOTOR OIL, WASH AREA THOROUGHLY W/SOAP & WATER OR USE WATERLESS HAND CLEANERS. DO NOT USE GASOLINE, THINNERS OR SOLVENTS. INHAL:IF ADVERSE EFFECTS OCCUR, REMOVE TO UNCONTAMINATED AREA. INGEST:IF LG AMT SWALLOWED, INDUCE VOMITING. GET MD.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: CONTAIN ON ABSORBENT MATERIAL (E.G., SAND, SAWDUST, DIRT, CLAY). KEEP OUT OF SEWERS AND WATERWAYS.
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: DISPOSAL MUST BE I/A/W APPLICABLE FEDERAL, STATE, OR LOCAL REGULATIONS. ENCLOSED-CONTROLLED INCINERATION IS RECOMMENDED UNLESS DIRECTED OTHERWISE BY APPLICABLE ORDINANCES.
Precautions-Handling/Storing: WEAR PROTECTIVE CLOTHING AND IMPERVIOUS GLOVES WHEN WORKING W/USED MOTOR OILS.
Other Precautions: NONE SPECIFIED BY MANUFACTURER.

Control Measures

Respiratory Protection: NONE REQUIRED; HOWEVER, USE OF ADEQUATE VENTILATION IS GOOD INDUSTRIAL PRACTICE.
Ventilation: NONE SPECIFIED BY MANUFACTURER.
Protective Gloves: IMPERVIOUS GLOVES.
Eye Protection: CHEMICAL WORKERS GOGGLES (FP D).
Other Protective Equipment: PROTECTIVE CLOTHING.
Work Hygienic Practices: REMOVE OIL-SOAKED CLTHG, INCLUDING SHOES, & THOROUGHLY CLEAN & DRY BEFORE RE-USE.
Suppl. Safety & Health Data: NONE SPECIFIED BY MANUFACTURER.

Transportation Data

Trans Data Review Date: 91248
DOT PSN Code: ZZZ
DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
IMO PSN Code: ZZZ
IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION
IATA PSN Code: ZZZ
IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
AFI PSN Code: ZZZ
AFI Prop. Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
Additional Trans Data: NOT REGULATED FOR TRANSPORTATION

Disposal Data

Label Data

Label Required: YES
Label Status: G
Common Name: AMOCO LDO SG MOTOR OIL 10W-40
Special Hazard Precautions: ACUTE:EYE/INHAL/INGEST:NO SIGNIFICANT HEALTH HAZARDS IDENTIFIED. SKIN:NONE EXPECTED FOR SINGLE SHORT-TERM EXPOSURES. PRLNGD/RPTD CONTACT MAY PRODUCE SOME IRRITATION. CAUTION! CONTINUOUS LONG-TERM CONTACT W/USED MOTOR OILS HAS CAUSED CANCER IN ANIMAL TESTS. (MFR.) NONE SPECIFIED BY MANUFACTURER.
Label Name: AMOCO OIL CO
Label Street: 200 E RANDOLPH DR
Label City: CHICAGO
Label State: IL
Label Zip Code: 60601
Label Country: US
Label Emergency Number: 800-447-8735;800-424-9300(CHEMTREC)

Material Safety Data Sheet

Anachemia

255 Norman.
Lachine (Montreal), Que
H8R 1A3

EMERGENCY NUMBERS:

(USA) CHEMTREC : 1(800) 424-9300 (24hrs)
(CAN) CANUTEC : 1(613) 996-6666 (24hrs)
(USA) Anachemia : 1(518) 297-4444
(CAN) Anachemia : 1(514) 489-5711

WHMIS	Protective Clothing	TDG Road/Rail
WHMIS CLASS: E C D-1A		TDG CLASS: 8 5.1 6.1 9.2 PIN: UN2032 PG: I
		

Section I. Product Identification and Uses

Product name	**NITRIC ACID, 90%**
Chemical formula	HNO3 in H2O
Synonyms	Nitric acid red fuming, Red fuming nitric acid, AC-6527, 62800
Supplier	Anachemia Canada. 255 Norman. Lachine (Montreal), Que H8R 1A3
Material uses	For laboratory use only.

CI#	Not available.
CAS#	Not applicable.
Code	AC-6527
Formula weight	Not applicable.
Supersedes	

Section II. Ingredients

Name	CAS #	%	TLV
1) NITRIC ACID	7697-37-2	>90	Exposure limits: ACGIH TWA 2 ppm (5.2 mg/m3); STEL 4 ppm (10 mg/m3)
2) NITROGEN DIOXIDE	10102-44-0	7.5-12.7	Exposure limits: ACGIH TWA 3 ppm (5.6 mg/m3); STEL 5 ppm (9.4 mg/m3)
3) WATER	7732-18-5	Balance	Not established by ACGIH.

Toxicity values of the hazardous ingredients

NITRIC ACID:
ORAL (LDLo): Acute: 430 mg/m3 (Human).
UNREPORTED (LDLo): Acute: 110 mg/kg (Human).
NITRIC ACID, FUMING:
INHALATION (LC50): Acute: 67 ppm (Rat) (NO2) (4 hour(s)).
NITROGEN DIOXIDE:
GAS (LC50): Acute: 30 ppm (Guinea pig) (1 hour(s)). 88 ppm (Rat) (4 hour(s)). 315 ppm/15M (Rabbit).
GAS (LCLo): Acute: 200 ppm/1M (Human).

Section III. Physical Data

Physical state and appearance / Odor	Yellow to brown-red liquid. Pungent and suffocating acid odor.
pH (1% soln/water)	<7
Odor threshold	<5 ppm
Percent volatile	100% (V/V)
Freezing point	-42°C
Boiling point	83°C
Specific gravity	1.526-1.544 (Water = 1)
Vapor density	2.2 (Air = 1)
Vapor pressure	62 mm of Hg (@ 25°C)
Water/oil dist. coeff.	Not available.
Evaporation rate	Not available.
Solubility	Miscible in water.

Section IV. Fire and Explosion Data

Flash point	Not applicable.
Flammable limits	Not applicable.
Auto-ignition temperature	Not applicable.
Fire degradation products	Oxides of nitrogen (NO, NO2, N2O, N2O3) plus nitric acid mist or vapor.
Fire extinguishing procedures	Use flooding quantities of water. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full facepiece operated in a pressure demand or other positive pressure mode. Cool containing vessels with flooding quantities of water until well after fire is out.
Fire and Explosion Hazards	Powerful oxidizing agent; may ignite oxidizable materials. Contributes to combustion of other materials. Container explosion may occur under fire conditions or when heated. Contact with other material may cause fire and/or explosion. Flammable/explosive hydrogen gas may be formed upon contact of this product with metals. Emits toxic and corrosive fumes under fire conditions. Reacts violently with water.

Section V. Toxicological Properties

Routes of entry	Ingestion and inhalation. Eye contact. Skin contact.
Effects of Acute Exposure	May be fatal by ingestion, inhalation, or by skin absorption. Corrosive to skin and eyes on contact. Vapors, liquids and mists are extremely corrosive. Possible risks of irreversible effects. Effects may be delayed. Target organs: eyes, skin, respiratory system, lungs, teeth, cardiovascular system. 25 ppm (NO2) is immediately dangerous to life or health.
Eye	Vapors, liquids and mists are extremely corrosive to the eyes. Brief contact of the vapors will be severely irritating. Brief contact of the liquid or mist will severely damage the eyes and prolonged contact may cause permanent eye injury which may be followed by blindness.
Skin	Causes severe burns, blisters and yellow skin discoloration.
Inhalation	Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, laryngitis, bronchitis, dyspnea, headache, nausea, hypotension, cyanosis, and vomiting. May cause delayed lung injury.
Ingestion	Burns in mouth, pharynx and gastrointestinal tract. Risk of vomiting, nausea, diarrhea, abdominal pain, stomach perforation, hematemesis, hemoptysis, hypotension, nephritis, albuminuria, oliguria, anuria, hematuria, convulsions, kidney damage, coma and death.

Section V. Toxicological Properties

Effects of Chronic Overexposure	May cause erosion of the teeth, lesions of the skin, bronchial irritation, coughing, pneumonia, bronchitis, and lung damage. Repeated or prolonged exposure to the substance can produce target organs damage. Carcinogenic effects: Not available. Mutagenic effects: Not available. Teratogenic effects: Not available. Toxicity of the product to the reproductive system: Not available. To the best of our knowledge, the chemical, physical, and toxicity of this substance has not been fully investigated.

Section VI. First Aid Measures

Eye contact	Immediate first aid is needed to prevent eye damage. Washing within 1 minute is essential to achieve maximum effectiveness. IMMEDIATELY flush eyes with copious quantities of water for at least 30 minutes holding lids apart to ensure flushing of the entire surface. Seek immediate medical attention. If irritation persists, repeat flushing.
Skin contact	Immediate first aid is needed to prevent skin damage. IMMEDIATELY flush skin with running water for at least 30 minutes. Remove contaminated clothing, protecting your own hands and body. Seek immediate medical attention. If irritation persists, repeat flushing. Do not transport victim unless the recommended flushing period is completed or flushing can be continued during transport. Wash contaminated clothing before reusing.
Inhalation	Remove patient to fresh air. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Seek immediate medical attention.
Ingestion	If conscious, wash out mouth with water. Have conscious person drink several glasses of water or milk. Aim to dilute acid 100 times approximately. DO NOT induce vomiting. Seek immediate medical attention. Never give anything by mouth to an unconscious or convulsing person. Guard against aspiration into lungs. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water.

Section VII. Reactivity Data

Stability	Stable. Conditions to avoid: High temperatures, sparks, open flames and all other sources of ignition, contamination.
Hazardous decomp. products	Various nitrogen oxides, including (NO, NO2, N2O3, N2O) all mixed with nitric acid mist and vapor.
Incompatibility	Explosive reaction with reducing agents, combustible materials, wood, paper, cotton, and similar organic materials, organic chemicals, fluorine, phosphine, carbonates, diborane, hydrocarbons, dichromates, bases, alkalis, aluminum, iron, copper, resins, sulfides, ammonia, amines, alcohols, turpentine, hydrogen sulfide, metal powders, carbides, organic materials (acetone, acetic acid, methanol, formaldehyde, ether, etc..), non-metals (boron, phosphorus, carbon, etc..), hydrazine, acids, peroxides, silicides, phosphides, salicylates, non-metal oxides, thiols, nitrides, cyanates, ketones, interhalogens, boron phosphide, cyanides, acetylides, silver compounds, mercury(II) compounds, thiocyanates, ammonium nitrate, hexacyanoferrates, phosphorus compounds, zinc ethoxide, azides, metal oxides, ferricyanides, alkali metals. Reacts with most common metals to produce hydrogen. Heat.
Reaction Products	Reacts with water to produce heat, and toxic, corrosive fumes of nitrogen oxides. Contact with other material may cause fire and/or explosion. Corrosive to metals. Hazardous polymerization will not occur.

Section VIII. Preventive Measures

Protective Clothing in case of spill and leak	Wear self-contained breathing apparatus, neoprene boots and neoprene gloves. Full suit.
Spill and leak	Evacuate and ventilate the area. Eliminate all sources of ignition. Cover with soda ash or lime. Adequate ventilation is required for soda ash due to release of carbon dioxide gas. Place in a suitable container and mark for disposal. Wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch damaged container or spilled material. Avoid contact with a combustible material (wood, paper, oil, clothing...). Stay upwind: Keep out of low areas.
Waste disposal	According to all applicable regulations. Harmful to aquatic life at very low concentrations. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Storage and Handling	Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials. Do not add any other material to the container. Do not wash down the drain. Do not breathe gas/fumes/vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from direct sunlight or strong incandescent light. Keep container tightly closed and dry. Manipulate under an adequate fume hood. Avoid contact with a combustible material (wood, paper, oil, clothing...). Empty containers may contain a hazardous residue. Handle and open container with care. Take off immediately all contaminated clothing. This product must be manipulated by qualified personnel. Do not get in eyes, on skin, or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking and food consumption while handling. In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible.). Do not allow water to get inside container because of violent reaction. May catch fire in contact with combustible materials. May develop pressure; vent periodically.

Section IX. Protective Measures

Protective clothing	Face shield and splash goggles. Impervious neoprene gloves, synthetic apron, coveralls, and/or other resistant protective clothing. Sufficient to protect skin. Have available and use as appropriate: neoprene suits and boots. A OSHA/MSHA jointly approved respirator is advised in the absence of proper environmental controls. If more than TLV, do not breathe vapor. Wear self-contained breathing apparatus. Do not wear contact lenses. Make eye bath and emergency shower available. Ensure that eyewash station and safety shower is proximal to the work-station location.
Engineering controls	Use only in a chemical fume hood to keep airborne levels below recommended exposure limits. Ventilation should be corrosion proof. Do not use in unventilated spaces.

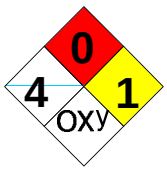
Section X. Other Information

Special Precautions or comments

Extremely corrosive liquid! Powerful oxidizing agent; may ignite oxidizable materials. Highly toxic! Causes severe burns which may be delayed! Risk of serious damage to eyes. Possible risks of irreversible effects. Do not breathe vapor. Avoid all contact with the product. Avoid prolonged or repeated exposure. Use only in a chemical fume hood. Contact with other material may cause fire and/or explosion. Reacts violently with water. When diluting, always add acid to water, not water to acid. Heat is generated by dilution. Handle and open container with care. Container should be opened only by a technically qualified person.

Note to physician: Medical conditions that may be aggravated by exposure include asthma, bronchitis, emphysema, and other lung diseases and chronic nose, sinus, or throat conditions. In the event of skin or eye contact, rapid and thorough flushing is essential.

RTECS no. QU5900000.



NFPA

Prepared by MSDS Department/Département de F.S..

Validated 11-Dec-2001

Telephone# (514) 489-5711

BARIUM AND CHEMICALS INC -- POTASSIUM NITRATE

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MSDS Safety Information

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MSDS Date: 12/27/2000
MSDS Num: CKXTG
Product ID: POTASSIUM NITRATE
MFN: 01
Responsible Party
Cage: 20865
Name: BARIUM AND CHEMICALS INC
Address: COUNTY RD 44
Box: 218
City: STEUBENVILLE OH 43952
Info Phone Number: 740-282-9776
Emergency Phone Number: 740-282-9776
Published: Y

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Contractor Summary

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Cage: 20865
Name: BARIUM AND CHEMICALS INC
Address: COUNTY RD 44
Box: 218
City: STEUBENVILLE OH 43952
Phone: 740-282-9776
Contract Number: SP0413-01-M-0433

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Ingredients

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Cas: 7757-79-1
RTECS #: TT3700000
Name: POTASSIUM NITRATE
% low Wt: 99.
% high Wt: 100.

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Health Hazards Data

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Route Of Entry Inds - Inhalation: YES
Skin: YES
Ingestion: YES
Effects of Exposure: IRRITATION OF SKIN AND MUCOUS MEMBRANES. INGESTION OF LARGE AMOUNTS CAUSES VIOLENT GASTROENTERITIS. CHRONIC EXPOSURE: ANEMIA, NEPHRITIS, METHEMOGLOBINENIA.
Signs And Symptions Of Overexposure: DIZZINESS, ABDOMINAL CRAMPS, VOMITING, HEADACHES, MENTAL IMPAIRMENT, CYANOSIS.
Medical Cond Aggravated By Exposure: NA

First Aid: EYES: FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES: CALL PHYSICIAN. SKIN: FLUSH THOROUGHLY WITH WATER. INGESTION: DRINK WATER AND INDUCE VOMITING. INHALATION: REMOVE TO FRESH AIR, CALL PHYSICIAN.

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Handling and Disposal

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Spill Release Procedures: WEAR IMPERVIOUS GLOVES, BOOTS, COVERALLS AND GOGGLES. WEAR NIOSH/MSHA-APPROVED DUST RESPIRATOR. SHOVEL UP SPILLED MATERIAL.
Waste Disposal Methods: SANITARY LANDFILL I/A/W FEDERAL, STATE AND LOCAL REGULATIONS.
Handling And Storage Precautions: STOW AWAY FROM REDUCING AGENTS AND LIQUIDS OF LOW FLASH POINTS.
Other Precautions: CONTAINERS USED TO SHIP THIS MATERIAL SHOULD BE DISPOSED OF I/A/W LOCAL, STATE AND FEDERAL REGULATIONS.

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Fire and Explosion Hazard Information

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Flash Point Text: NA
Autoignition Temp Text: NA
Lower Limits: NA
Upper Limits: NA
Extinguishing Media: SMALL FIRES: DRY CHEMICAL / LARGE FIRES: WATER SPRAY, FOG OR FOAM.
Fire Fighting Procedures: REMOVE CONTAINERS, IF POSSIBLE WITHOUT RISK. COOL CONTAINERS WITH WATER. USE NIOSH/MSHA-APPROVED SCBA WHEN MATERIAL IS INVOLVED IN FIRE.
Unusual Fire/Explosion Hazard: OXIDIZER - KEEP AWAY FROM REDUCING AGENTS. WILL EXPLODE IF HEATED TO 1000 F IN PRESENCE OF REDUCING AGENTS, ORGANIC MATERIALS, OR IF MIXED WITH CYANIDES. YIELDS TOXIC GASEOUS OXIDES WHEN HEATED ABOVE 1000 F.

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Control Measures

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Respiratory Protection: NIOSH/MSHA-APPROVED DUST-TYPE RESPIRATOR.
Protective Gloves: IMPERVIOUS: BUTYL OR RUBBER.
Eye Protection: GOGGLES.
Other Protective Equipment: COVERALLS AND IMPERVIOUS BOOTS.
Work Hygienic Practices: WASH THOROUGHLY AFTER HANDLING. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. AVOID CONTACT WITH EYES.
Supplemental Safety and Health: KEEP CONTAINER TIGHTLY CLOSED. AVOID INGESTION AND INHALATION. USE WITH ADEQUATE VENTILATION. WASH CLOTHING BEFORE REUSE. KEEP AWAY FROM CLOTHING AND OTHER COMBUSTIBLE MATERIALS.

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Physical/Chemical Properties

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HCC: D1
B.P. Text: NA
Melt/Freeze Pt: =333.C, 631.4F

Vapor Pres: NEGLIGIBLE
Spec Gravity: 2.1
Solubility in Water: 36 G/100 ML H2O
Appearance and Odor: WHITE CRYSTALS OR POWDER, ODORLESS.
==========
Reactivity Data
==========
Stability Indicator: YES
Stability Condition To Avoid: AVOID CONTACT WITH REDUCING AGENTS AND FLAMMABLE OR COMBUSTIBLE MATERIAL.
Materials To Avoid: REDUCING AGENTS, FLAMMABLES OR COMBUSTIBLES.
Hazardous Decomposition Products: OXIDES OF NITROGEN.
Hazardous Polymerization Indicator: NO
Conditions To Avoid Polymerization: WILL NOT OCCUR
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Toxicological Information
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Ecological Information
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MSDS Transport Information
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Regulatory Information
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Other Information
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Transportation Information
==========
Responsible Party Cage: 20865
Trans ID NO: 155807
Product ID: POTASSIUM NITRATE
MSDS Prepared Date: 12/27/2000
Review Date: 01/16/2001
MFN: 1
Multiple KIT Number: 0
Unit Of Issue: CY
Type Of Container: CYLINDER
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Detail DOT Information
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DOT PSN AM
DOT Proper Shipping Name: POTASSIUM NITRATE
Hazard Class: 5.1
UN ID Num: UN1486

DOT Packaging Group: III
Label: OXIDIZER
Special Provision: A1,A29
Packaging Exception: 152
Non Bulk Pack: 213
Bulk Pack: 240
Max Qty Pass: 25 KG
Max Qty Cargo: 100 KG
Vessel Stow Req: A

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Detail IMO Information

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IMO PSN EL
IMO Proper Shipping Name: POTASSIUM NITRATE
IMDG Page Number: 5171
UN Number: 1486
UN Hazard Class: 5.1
IMO Packaging Group: III
Subsidiary Risk Label: -
EMS Number: 5.1-06
MED First Aid Guide NUM: 235

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Detail IATA Information

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IATA PSN Code: UQX
IATA UN ID Num: 1486
IATA Proper Shipping Name: POTASSIUM NITRATE
IATA UN Class: 5.1
IATA Label: OXIDIZER
UN Packing Group: III
Packing Note Passenger: 516
Max Quant Pass: 25KG
Max Quant Cargo: 100KG
Packaging Note Cargo: 518

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Detail AFI Information

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AFI PSN Code: UQX
AFI Proper Shipping Name: POTASSIUM NITRATE
AFI Hazard Class: 5.1
AFI UN ID NUM: UN1486
AFI Packing Group: III
Special Provisions: P5, A1, A29
Back Pack Reference: A9.8

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HAZCOM Label

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Product ID: POTASSIUM NITRATE

Cage: 20865
Company Name: BARIUM AND CHEMICALS INC
Street: COUNTY RD 44
PO Box: 218
City: STEUBENVILLE OH
Zipcode: 43952
Health Emergency Phone: 740-282-9776
Label Required IND: Y
Date Of Label Review: 01/16/2001
Status Code: A
Label Date: 01/16/2001
Origination Code: F
Chronic Hazard IND: Y
Eye Protection IND: YES
Skin Protection IND: YES
Signal Word: CAUTION
Respiratory Protection IND: YES
Health Hazard: Slight
Contact Hazard: Slight
Fire Hazard: None
Reactivity Hazard: None
Hazard And Precautions: IRRITATION OF SKIN AND MUCOUS MEMBRANES. INGESTION OF LARGE AMOUNTS CAUSES VIOLENT GASTROENTERITIS. CHRONIC EXPOSURE: ANEMIA, NEPHRITIS, METHEMOGLOBINENIA.FIRST AID: EYES: FLUSH WITH WATER FOR 15 MINU TES. GET MEDICAL ATTENTION. SKIN: FLUSHWITH WATER. INGESTION: DRINK WATER AND INDUCE VOMITING. INHALATION: MOVE TO FRESH AIR. GET MEDICAL ATTENTION.
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CORNELL

Material Safety Data Sheets

Division of Facilities Services

DOD Hazardous Material Information (ANSI Format)
For Cornell University Convenience Only

SODA ASH

Section 1 - Product and Company Identification
SODA ASH

Product Identification: SODA ASH
Date of MSDS: 01/01/1985 **Technical Review Date:** 12/04/1981
FSC: 6810 **NIIN:** 00-664-0402
Submitter: D DG
Status Code: C
MFN: 01
Article: N
Kit Part: N

Manufacturer's Information

Manufacturer's Name: BASF WYANDOTTE CORP.
Manufacturer's Address1:
Manufacturer's Address2: N/P, NK 00000
Manufacturer's Country: NK
General Information Telephone:
Emergency Telephone: 313-282-3300
Emergency Telephone: 313-282-3300
MSDS Preparer's Name: N/P
Proprietary: N
Reviewed: Y
Published: Y
CAGE: 83339
Special Project Code: N

Item Description

Item Name:
Item Manager:
Specification Number: O-S-571
Type/Grade/Class: NK
Unit of Issue:
Unit of Issue Quantity:
Type of Container:

Contractor Information

Contractor's Name: BASF WYANDOTTE CORP
Contractor's Address1: 1609 BIDDLE AVE
Contractor's Address2: WYANDOTTE, MI 48192-3729
Contractor's Telephone: 313-246-6100
Contractor's CAGE: 83339

Section 2 - Compositon/Information on Ingredients
SODA ASH

Ingredient Name: SODIUM CARBONATE
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: NZ4050000 **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: >99
% Enviromental Weight:
Other REC Limits: N/P
OSHA PEL: N/P **OSHA PEL Code:**
OSHA STEL: OSHA STEL Code:
ACGIH TLV: N/P **ACGIH TLV Code:**
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Section 3 - Hazards Identification, Including Emergency Overview
SODA ASH

Health Hazards Acute & Chronic: N/P

Signs & Symptoms of Overexposure:
IRRITANT

Medical Conditions Aggravated by Exposure:
N/P

LD50 LC50 Mixture: N/P

Route of Entry Indicators:
Inhalation: N/P

Skin: N/P
Ingestion: N/P

Carcenogenicity Indicators
NTP: N/P
IARC: N/P
OSHA: N/P

Carcinogenicity Explanation: N/P

Section 4 - First Aid Measures
SODA ASH

First Aid:
SKIN/EYE: WASH WITH RUNNING WATER.

Section 5 - Fire Fighting Measures
SODA ASH

Fire Fighting Procedures:
N/P
Unusual Fire or Explosion Hazard:
MELT POINT:1564F
Extinguishing Media:
NON-FLAMMABLE,NOT EXPLOSIVE
Flash Point: Flash Point Text: NONE

Autoignition Temperature:
Autoignition Temperature Text: N/A
Lower Limit(s):
Upper Limit(s):

Section 6 - Accidental Release Measures
SODA ASH

Spill Release Procedures:
VACUUM OR SWEEP OR WASH WITH LARGE AMTS OF WATER.

Section 7 - Handling and Storage
SODA ASH

Handling and Storage Precautions:

Other Precautions:

Section 8 - Exposure Controls & Personal Protection
SODA ASH

Repiratory Protection:
DUST RESPIRATORS-WHEN DUST IS EXCESSIVE
Ventilation:
LOCAL EXHAUST:IF PRODUCT DUSTY-USE EXHAUST FAN.
Protective Gloves:
PLASTIC COATED
Eye Protection: GOGGLES
Other Protective Equipment: N/P
Work Hygenic Practices: N/P
Supplemental Health & Safety Information: N/P

Section 9 - Physical & Chemical Properties
SODA ASH

HCC: N1
NRC/State License Number:
Net Property Weight for Ammo:
Boiling Point: Boiling Point Text: NONE
Melting/Freezing Point: Melting/Freezing Text: N/A
Decomposition Point: Decomposition Text: N/A
Vapor Pressure: N/P **Vapor Density:** N/P
Percent Volatile Organic Content:
Specific Gravity: 2.53
Volatile Organic Content Pounds per Gallon:
pH: N/P
Volatile Organic Content Grams per Liter:
Viscosity: N/P
Evaporation Weight and Reference: NONE
Solubility in Water: 21.5MG/100
Appearance and Odor: WHITE POWDER,ODORLESS
Percent Volatiles by Volume: NONE
Corrosion Rate: N/P

Section 10 - Stability & Reactivity Data
SODA ASH

Stability Indicator: YES

Materials to Avoid:
LIME/MOISTURE IN PRESENCE OF SODA ASH YEILDS A CAUSTIC.
Stability Condition to Avoid:
COMBINATION OF LIME AND WATER
Hazardous Decomposition Products:
N/P
Hazardous Polymerization Indicator: NO
Conditions to Avoid Polymerization:
N/P

Section 11 - Toxicological Information
SODA ASH

Toxicological Information:
N/P

Section 12 - Ecological Information
SODA ASH

Ecological Information:
N/P

Section 13 - Disposal Considerations
SODA ASH

Waste Disposal Methods:
DEPENDS ON FED.,STATE,AND LOCAL REGULATIONS.

Section 14 - MSDS Transport Information
SODA ASH

Transport Information:
N/P

Section 15 - Regulatory Information
SODA ASH

SARA Title III Information:
N/P
Federal Regulatory Information:
N/P
State Regulatory Information:
N/P

Section 16 - Other Information
SODA ASH

Other Information:
N/P

HMIS Transportation Information

Product Identification: SODA ASH
Transporation ID Number: 81245
Responsible Party CAGE: 83339
Date MSDS Prepared: 01/01/1985
Date MSDS Reviewed: 12/04/1981
MFN: 12/04/1981
Submitter: D DG
Status Code: C

Container Information
Unit of Issue:
Container Quantity:
Type of Container:
Net Unit Weight:

Article without MSDS: N
Technical Entry NOS Shipping Number:
Radioactivity:
Form:
Net Explosive Weight:
Coast Guard Ammunition Code:
Magnetism: N/P
AF MMAC Code:
DOD Exemption Number:
Limited Quantity Indicator:
Multiple Kit Number: 0
Kit Indicator: N
Kit Part Indicator: N
Review Indicator: Y
Additional Data:

Department of Transportation Information

DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
DOT PSN Code: ZZZ
Symbols: N/R
DOT PSN Modifier:

Hazard Class: N/R
UN ID Number: N/R
DOT Packaging Group: N/R
Label: N/R
Special Provision(s): N/R
Packaging Exception: N/R
Non Bulk Packaging: N/R
Bulk Packaging: N/R
Maximimum Quanity in Passenger Area: N/R
Maximimum Quanity in Cargo Area: N/R
Stow in Vessel Requirements: N/R
Requirements Water/Sp/Other: N/R

IMO Detail Information

IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION
IMO PSN Code: ZZZ
IMO PSN Modifier:
IMDG Page Number: N/R
UN Number: N/R
UN Hazard Class: N/R
IMO Packaging Group: N/R
Subsidiary Risk Label: N/R
EMS Number: N/R
Medical First Aid Guide Number: N/R

IATA Detail Information

IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
IATA PSN Code: ZZZ
IATA PSN Modifier:
IATA UN Id Number: N/R
IATA UN Class: N/R
Subsidiary Risk Class: N/R
UN Packaging Group: N/R
IATA Label: N/R
Packaging Note for Passengers: N/R
Maximum Quantity for Passengers: N/R
Packaging Note for Cargo: N/R
Maximum Quantity for Cargo: N/R
Exceptions: N/R

AFI Detail Information

AFI Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
AFI Symbols:
AFI PSN Code: ZZZ
AFI PSN Modifier:
AFI UN Id Number: N/R

AFI Hazard Class: N/R
AFI Packing Group: N/R
AFI Label: N/R
Special Provisions: N/A
Back Pack Reference: N/A

HAZCOM Label Information

Product Identification: SODA ASH
CAGE: 83339
Assigned Individual: N
Company Name: BASF WYANDOTTE CORP
Company PO Box:
Company Street Address1: 1609 BIDDLE AVE
Company Street Address2: WYANDOTTE, MI 48192-3729 US
Health Emergency Telephone: 313-282-3300
Label Required Indicator: Y
Date Label Reviewed: 12/16/1998
Status Code: C
Manufacturer's Label Number:
Date of Label: 12/16/1998
Year Procured: N/K
Organization Code: G
Chronic Hazard Indicator: N/P
Eye Protection Indicator: N/P
Skin Protection Indicator: N/P
Respiratory Protection Indicator: N/P
Signal Word: N/P
Health Hazard:
Contact Hazard:
Fire Hazard:
Reactivity Hazard:

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FISHER SCIENTIFIC -- SODIUM HYDROXIDE, PURUM PELLETS, S318 5

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MSDS Safety Information

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MSDS Date: 12/12/1997
MSDS Num: CJGBC
Product ID: SODIUM HYDROXIDE, PURUM PELLETS, S318 5
MFN: 02
Responsible Party
Cage: 1B464
Name: FISHER SCIENTIFIC
Address: 1 REAGENT LANE
City: FAIR LAWN NJ 07410
Info Phone Number: 201-796-7100
Emergency Phone Number: 201-796-7100
Resp. Party Other MSDS No.: 21300
Chemtrec IND/Phone: (800)424-9300
Review Ind: Y
Published: Y

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Contractor Summary

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Cage: 1B464
Name: FISHER SCIENTIFIC CO. CHEMICAL MFG DIV
Address: 1 REAGENT LANE
City: FAIRLAWN NJ 07410-2802
Phone: 201-796-7100
Cage: SO010
Name: NAVY ENVIRONMENTAL HEALTH CENTER
Address: 2510 WALMER AVENUE
City: NORFOLK VA 23513-2617
Phone: 804-444-4657, DSN 564-4657 X 272

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Toxicological Information

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Toxicological Information: CARCINOGENICITY: SODIUM HYDROXIDE - NOT LISTED BY ACGIH, IARC, NIOSH, NTP OR OSHA. EPIDEMIOLOGY: NO INFO REPORTED. TERATOGENICITY: NO INFO REPORTED. REPRODUCTIVE EFTS: NO INFO REPORTED. NEUROTOXICITY: NO INFO REPORTED. MUTAGENICITY: MUTATION DATA REPORTED. OTHER STUDIES: NO INFO REPORTED.

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Ecological Information

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Ecological: ECOTOXICITY: TLM, MOSQUITO FISH, 125 PPM/96HR (FRESH WATER); TLM, BLUEGILL, 88 MG/48HR (TAP WATER). ENVIRONMENTAL FATE: THIS CHEM IS NOT MOBILE IN SOLID FORM, ALTHOUGH IT ABSORBS MOISTURE VERY EASILY. ONCE LIQUID, SODIUM HYDROXIDE LEACHES RAPIDLY INTO THE SOIL, POSSIBLY CONTAMINATING WATER SOURCES. PHYSICAL/CHEMICAL: NO INFO FOUND. OTHER: NO INFO FOUND.

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MSDS Transport Information

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Transport Information: US DOT - SHIPPING NAME: SODIUM HYDROXIDE, SOLID. HAZ CLASS: 8. UN NUMBER: UN1823. PACKING GROUP: II. IMO - SHIPPING NAME: SODIUM HYDROXIDE, SOLID. HAZ CLASS: 8. UN NUMBER: 1823. PACKING GROUP: 2. IATA - SHIPPING NAME: SODIUM HYDROXIDE, SOLID. HAZ CLASS: 8. UN NUMBER: 1823. PACKING GROUP: 2. RID/ADR - SHIPPING NAME: SODIUM HYDROXIDE, SOLID. DANGEROUS GOODS CODE: 8(41B). UN NUMBER: 1823.

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Regulatory Information

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Sara Title III Information: SECTION 302 (RQ) CAS #1310-73-2: FINAL RQ = 1000 LBS (454 KG). SECTION 302 (TPQ) NONE OF CHEMS IN PROD HAVE TPQ. SARA CODES CAS #1310-73-2: ACUTE, REACTIVE. SECTION 313 NO CHEMS ARE REPORTABLE UNDER S ECTION 313. CLEAN AIR ACT: THIS MATL DOES NOT CNTN ANY HAZ AIR POLLUTANTS. THIS MATL DOES NOT CNTN ANY CLASS 1 OZONE DEPLETORS. THIS MATL DOES NOT CNTN ANY CLASS 2 OZONE DEPLETORS. CLEAR WATER ACT: C AS #1310-73-2 IS LISTED AS HAZ SUBSTANCE UNDER CWA. NONE OF CHEMS IN PROD ARE LISTED AS PRIORITY POLLUTANTS UNDER CWA. NONE OF CHEMS IN PROD ARE LISTED AS TOX POLLUTANTS UNDER CWA.
OSHA: NONE OF CHEMS IN PROD CONSIDERED HIGHLY HAZ BY OSHA.
Federal Regulatory Information: TSCA CAS #1310-73-2 IS LISTED ON THE TSCA INVENTORY. HEALTH & SAFETY REPORTING LIST: NONE OF THE CHEMICALS IN THIS PRODUCT ARE UNDER A CHEMICAL TEST RULE. SECTION 12B: NONE OF THE CHEMICALS ARE LISTED UNDER TSCA SECTION 12B. TSCA SIGNIFICANT NEW USE RULE: NONE OF THE CHEMICALS IN THIS MATERIAL HAVE A SNUR UNDER TSCA.
State Regulatory Information: SODIUM HYDROXIDE CAN BE FOUND ON THE FOLLOWING STATE RIGHT TO KNOW LISTS: CALIFORNIA, NEW JERSEY, FLORIDA, PENNSYLVANIA, MINNESOTA, MASSACHUSETTS. CALIFORNIA NO SIGNIFICANT RISK LEVEL: NONE OF THE CHE MICALS IN THIS PRODUCT ARE LISTED.

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Other Information

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HAZCOM Label

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Product ID: SODIUM HYDROXIDE, PURUM PELLETS, S318 5
Cage: 1B464
Company Name: FISHER SCIENTIFIC CO. CHEMICAL MFG DIV
Street: 1 REAGENT LANE
City: FAIRLAWN NJ
Zipcode: 07410-2802
Health Emergency Phone: 201-796-7100
Label Required IND: Y
Date Of Label Review: 05/27/1999
Status Code: A
Origination Code: F
Chronic Hazard IND: Y
Eye Protection: YES
Skin Protection IND: YES
Signal Word: DANGER
Respiratory Protection: YES
Health Hazard: Moderate
Contact Hazard: Severe
Fire Hazard: None
Reactivity Hazard: Slight
Hazard And Precautions: GENERATES LARGE AMOUNTS OF HEAT WHEN IN CONTACT WITH WATER. ACUTE: EYE: CAUSES SEVERE EYE BURNS. SKIN: CAUSES SKIN BURNS. MAY CAUSE DEEP, PENETRATING ULCERS OF THE SKIN. INGESTION: HARMFUL IF SWALLOWE D. CAUSES GASTROINTESTINAL TRACT BURNS. CAUSES SEVERE PAIN, NAUSEA, VOMITING, DIARRHEA AND SHOCK. INHALATION: IRRITATION MAY LEAD TO CHEMICAL PNEUMONITIS AND PULMONARY EDEMA. CAUSES SEVERE IRRITATION OF UPPER RESPIRATORY TRACT WITH COUGHING, BURNS, BREATHING DIFFICULTY AND POSSIBLE COMA. CHRONIC: PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE DERMATITS. TARGET ORGANS: NONE.

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Disclaimer (provided with this information by the compiling agencies): This information is formulated for use by elements of the Department of Defense. The United States of America in no manner whatsoever expressly or implied warrants, states, or intends said information to have any application, use or viability by or to any person or persons outside the Department of Defense nor any person or persons contracting with any instrumentality of the United

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APPENDIX C

APPENDIX C BUILDING INSPECTION FORM

BUILDING INSPECTION CHECKLIST

Assigned Area:

Assigned Supervisor:

Inspection Date:

✓	Item	Comments/Deficiencies
	Are all worksites clean and orderly?	
	Are all exits kept free of obstructions?	
	Are all exits marked with an exit sign and illuminated by a reliable light source?	
	Are aisle ways kept clear to allow unhindered passage?	
	Are combustible scrap, debris, and waste materials stored in covered metal receptacles and removed from the worksite promptly?	
	Are all flammable liquids kept in closed containers when not in use?	
	Are all extinguishers free from obstructions or blockage?	
	Are all extinguishers charged? **Note date and time tested and initial on extinguisher tag.**	
	Are "No Smoking" rules followed in areas involving storage and use of flammable materials?	
	Are all spilled materials or liquids cleaned up immediately?	
	Are all work areas adequately illuminated?	
	Are emergency telephone numbers posted where they can be readily found in case of emergency?	
	Are all fire doors in good condition?	
	Is there anything to hinder the door from completely closing?	
	Is the fire alarm system in good working order? **Note date and time tested and initial on tag.**	

APPENDIX D

APPENDIX D NT-NU SPILL REPORT FORM

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER ____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME		

C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS

F	RESPONSIBLE PARTY OR VESSEL NAME	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION	
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION	
H	PRODUCT SPILLED	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS		

L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			