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.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Incompatible with polymerization catalysts (peroxides, persulfates) and accelerators, strong oxidizers, strong bases and strong acids.

Conditions to Avoid:
Incompatibles.

11. Toxicological Information

Oral Rat LD50 for:
PEG 200 = 28gm/kg; PEG 300 = 27.5gm/kg; PEG 400 = 30.2gm/kg; PEG 600 = 30gm/kg; PEG 1000 = 32gm/kg; PEG 1450 = > 4gm/kg; PEG 4000 = 50gm/kg; PEG 6000 = > 50gm/kg; PEG 20000 = 31.6gm/kg
Polyethylene glycol has been investigated as a mutagen; PEG 1000 has been investigated as a tumorigen.

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

Ingredient	Known	Anticipated	---NTP Carcinogen--- IARC Category
Polyethylene Glycol (25322-68-3)	No	No	None

12. Ecological Information

Environmental Fate:
No information found.

Environmental Toxicity:
No information found.

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.

15. Regulatory Information

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

Ingredient	TSCA	EC	Japan	Australia
Polyethylene Glycol (25322-68-3)	Yes	No	Yes	Yes

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

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Polyethylene Glycol (25322-68-3)	Yes	Yes	No	Yes

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

Ingredient	-SARA 302- RQ	TPQ	List	------SARA 313------ Chemical Catg.
Polyethylene Glycol (25322-68-3)	No	No	No	No

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

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Polyethylene Glycol (25322-68-3)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: No Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Solid)
Australian Hazchem Code: No information found.
Australian 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: 0 Flammability: 1 Reactivity: 0

Label Hazard Warning:
As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

Label Precautions:
None.

Label First Aid:
Not applicable.

Product Use:
Laboratory Reagent.

Revision Information:
No changes.

Disclaimer:

Prepared by: Strategic Services Division
Phone Number: (314) 654-1600 (U.S.A.)

P5029

PROPANE

M S D S

Canadian Centre for Occupational Health and Safety

Issue : 2001-1 (February, 2001)

*** IDENTIFICATION ***

MSDS RECORD NUMBER : 1434217
PRODUCT NAME(S) : H - D 5 PROPANE
DATE OF MSDS : 1997-02-18

*** MANUFACTURER INFORMATION ***

MANUFACTURER : IRVING OIL LIMITED
ADDRESS : Post Office Box 1421
Saint John New Brunswick
Canada E2L 4K1
Telephone: 506-632-2000
EMERGENCY TELEPHONE NO. : 506-648-3060

***

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*** SUPPLIER/DISTRIBUTOR INFORMATION ***

SUPPLIER/DISTRIBUTOR : IRVING OIL LIMITED
ADDRESS : Post Office Box 1421
Saint John New Brunswick
Canada E2L 4K1
Telephone: 506-632-2000
EMERGENCY TELEPHONE NO. : 506-648-3060

*** MATERIAL SAFETY DATA ***

PROPANE

MATERIAL SAFETY DATA SHEET

1. PRODUCT INFORMATION

PRODUCT IDENTIFIER		IRVING PRODUCT CODE
H - D 5 PROPANE		
WHMIS Classification	CLASS A - COMPRESSED GAS CLASS B, DIVISION 1: FLAMMABLE GAS	Application and Use AUTOMOTIVE OR SPACE HEATER FUEL

2. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State
Gas [X] Liquid [X] Solid [ ]

Odour and Appearance	COLOURLESS & ODORLESS WITHOUT MORCEPTON ADD
Odour Threshold (p.p.m.)	4800
Specific Gravity	.500 @ 15 deg C
Vapour Pressure (mm)	954 KPA @ 29.0 C
Vapour Density (Air = 1)	1.6
Evaporation Rate	RAPID
Boiling Point (deg C)	-40 C
Freezing Point (deg C)	-190 C
Solubility in Water (20 deg C)	6.1
% Volatile (by volume)	NOT AVAILABLE
pH	NOT AVAILABLE
Density (g/cm3)	.5
Coefficient of water/oil dist.	NOT AVAILABLE

3. HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	Approximate Concentration %	C.A.S. N.A. or U.N. Numbers
PROPANE	95-98%	74-98-6
LD50 Specify Species and Route: NOT AVAILABLE		
LC50 Specify Species and Route: NOT AVAILABLE		
ETHANE	3-5%	74-84-0
LD50 Specify Species and Route: NOT AVAILABLE		
LC50 Specify Species and Route: NOT AVAILABLE		
BUTANE	1-3%	79-10-68
LD50 Specify Species and Route: NOT AVAILABLE		
LC50 Specify Species and Route: NOT AVAILABLE		
ISO-BUTANE	0.1-0.3%	75-28-5
LD50 Specify Species and Route: NOT AVAILABLE		
LC50 Specify Species and Route: NOT AVAILABLE		

PROPANE

METHANE 0.1-0.2% 74-82-8
LD50 Specify Species and Route: NOT AVAILABLE
LC50 Specify Species and Route: NOT AVAILABLE

4. HEALTH HAZARD INFORMATION

ROUTE OF ENTRY
SKIN CONTACT [X] SKIN ABSORPTION [ ] EYE CONTACT [X]
INHALATION [X] INGESTION [ ]

EFFECTS OF ACUTE EXPOSURE TO PRODUCT
HIGH CONCENTRATIONS CAN CAUSE OXYGEN DEFICIENCY BY DISPLACING AIR AND CAUSE RAPID BREATHING, FATIGUE, INCOORDINATION, EXCESSIVE SALIVATION, HEADACHE, NAUSEA, VOMITING AND DISORIENTATION.

EFFECTS OF CHRONIC EXPOSURE TO PRODUCT
IF NOT REMOVED MAY CAUSE CONVULSIONS LOSS OF CONSCIOUSNESS AND DEATH. 10 MINUTES TO 10,000 PPM HAS PRODUCED DROWSINESS.

REPRODUCTIVE TOXICITY
NOT AVAILABLE

EXPOSURE LIMITS
1000 PPM FOR DAILY 8 HR EXPOSURE

IRRITANCY OF PRODUCT
MINOR SKIN AND EYE (GAS) (LIQUID) - EYE INJURY, FROST BITE, RESPIRATORY PROBLEMS

SENSITIZATION TO PRODUCT
NOT AVAILABLE

CARCINOGENICITY
NOT AVAILABLE

TERATOGENICITY
NOT AVAILABLE

MUTAGENICITY
NOT AVAILABLE

SYNERGISTIC PRODUCTS
NOT AVAILABLE

5. FIRE AND EXPLOSION HAZARD

FLAMMABILITY YES [X] NO [ ]

IF YES, UNDER WHICH CONDITIONS?

LIQUID EVAPORATES AND FORMS FUMES, WHICH CAN EXPLODE OR BURN QUICKLY IF IGNITED.

MEANS OF EXTINCTION which conditions
STOPFLOW - CO2 OR DRY CHEMICAL WATER FOG PRODUCED BY SPECIAL NOZZLE IS EFFECTIVE BUT REQUIRES EXPERIENCE.

SPECIAL PROCEDURES
DO NOT ENTER ANY ENCLOSED OR CONFINED SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT INCLUDE SELF - CONTAINED BREATHING APPARATUS.

FLASHPOINT (DEG C) AND METHOD
-140 deg C

PROPANE

UPPER FLAMMABLE LIMIT (% BY VOLUME)
9.5%
LOWER FLAMMABLE LIMIT (% BY VOLUME)
2.4%
AUTO IGNITION TEMPERATURE (DEG C)
432 deg C
TDG FLAMMABILITY CLASSIFICATION
UN 1978 / 2.1
HAZARDOUS COMBUSTION PRODUCTS
SMOKE, CARBON MONOXIDE, CARBON DIOXIDE
EXPLOSION DATA SENSITIVITY TO IMPACT SENSITIVITY TO STATIC DISCHARGE

6. FIRST AID MEASURES

INHALATION
REMOVE TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION IF BREATHING HAS STOPPED. CALL DOCTOR.
INGESTION
NOT EXPECTED TO BE AN INGESTION PROBLEM.
EYE
IF THE LIQUID SPLASHED IN EYES FLUSH IMMEDIATELY WITH FRESH WATER FOR AT LEAST 15 MINUTES. CALL A DOCTOR.
SKIN
SOAK THE AFFECTED AREA IN LUKEWARM WATER. SEE DOCTOR FOR FROSTBITE OR BURNS.
GENERAL ADVICE

7. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT
PROTECT FROM SKIN CONTACT
GLOVES (SPECIFY)
IMPERVIOUS PROTECTIVE GLOVES
RESPIRATORY (SPECIFY)
CARTRIDGE RESPIRATOR-OR-AIR SUPPLIED
EYE (SPECIFY)
CHEMICAL SAFETY GLASSES
FOOTWEAR (SPECIFY)

CLOTHING (SPECIFY)
IMPERVIOUS PROTECTIVE CLOTHING
OTHER (SPECIFY)

ENGINEERING CONTROLS (SPECIFY, E.G. VENTILATION, ENCLOSED PROCESS)

LEAK AND SPILL PROCEDURE
EVACUATE AREA - ELIMINATE ALL SOURCES OF IGNITION - WEAR PROTECTIVE CLOTHING

FOR CLEANUP.

WASTE DISPOSAL
NOT AVAILABLE

HANDLING PROCEDURES AND EQUIPMENT
HANDLE AND OPEN CONTAINERS WITH CARE.

STORAGE REQUIREMENTS
STORE IN COOL WELL VENTILATED AREA. KEEP AWAY FROM STRONG OXIDIZING MATERIAL AND SOURCES OF IGNITION.

SPECIAL SHIPPING INFORMATION
STORE AND LOAD AT NORMAL TEMPERATURE (UP TO 38 C) AND AT ATMOSPHERIC PRESSURE

8. REACTIVITY DATA

CHEMICAL STABILITY IF NO, UNDER
YES [X] NO [ ] WHICH CONDITIONS?

INCOMPATIBILITY WITH OTHER SUBSTANCES
YES [X] NO [ ] IF SO, MAY REACT WITH STRONG OXIDIZING MATERIALS
WHICH ONES?

REACTIVITY, AND UNDER WHAT CONDITIONS

HAZARDOUS DECOMPOSITION PRODUCTS
NORMAL COMBUSTION FORMS CARBON DIOXIDE AND WATER VAPOR. INCOMPLETE COMBUSTION CAN PRODUCE CARBON MONOXIDE.

9. PREPARATION

PREPARED BY: IRVING OIL LIMITED,
SAINT JOHN, N.B.
(506) 632-2000

DATE: FEB. 18, 1997

Cette fiche signaletique est aussi disponible en francais

QUICKLIME

* *
* M S D S *
* *
* Canadian Centre for Occupational Health and Safety *
* * * * * * * * * * * * Issue : 2001-1 (February, 2001) *

*** IDENTIFICATION ***

MSDS RECORD NUMBER : 2265230
PRODUCT NAME(S) : High-Calcium Quicklime
Calcium Oxide, Quicklime
DATE OF MSDS : 2000-01-06

*** MANUFACTURER INFORMATION ***

MANUFACTURER : Beachville Lime Limited
ADDRESS : Oxford County Road 6
Ingersoll Ontario
Canada N5C 3K5
EMERGENCY TELEPHONE NO. : 519-423-6283

*** SUPPLIER/DISTRIBUTOR INFORMATION ***

SUPPLIER/DISTRIBUTOR : Beachville Lime Limited
ADDRESS : Oxford County Road 6
Ingersoll Ontario
Canada N5C 3K5
EMERGENCY TELEPHONE NO. : 519-423-6283

*** MATERIAL SAFETY DATA ***

MATERIAL SAFETY DATA SHEET

SEC. I: MATERIAL IDENTIFICATION

MATERIAL: High-Calcium Quicklime
SYNONYMS: Calcium Oxide, Quicklime
MANUFACTURER: Beachville Lime Limited
Oxford County Road 6
Ingersoll, Ontario, N5C 3K5
Emergency Tel. No.: 519-423-6283
SUPPLIER: Same as Manufacturer
CHEMICAL NAME: Calcium Oxide
FORMULA: CaO
HAZARD CLASSIFICATION: Class E: Corrosive Substance

SEC. II: HAZARDOUS INGREDIENTS

INGREDIENT	% BY WT.	C.A.S. NO.	EXPOSURE LIMITS	LD50/LC50
Calcium Oxide	98	1305-78-8	2 mg/cu.m TWAEV	No published data

SEC. III: PHYSICAL DATA

PHYSICAL STATE:	Solid	ODOUR & APPEARANCE:	Odourless, white lumps or powder
SPECIFIC GRAVITY:	3.35	pH:	12.45 (Saturated Solution) at 25.0'C
MELTING PT. 'C:	2580	BOILING PT. 'C:	2850
VAPOUR PRESSURE:	Non-volatile		
COEFFICIENT OF WATER/OIL DISTRIBUTION:			Greater than 1

SEC. IV: FIRE AND EXPLOSION HAZARD

FIRE:	Non-flammable, non-combustible	EXPLOSION:	Non-explosive

SEC. V: REACTIVITY

STABILITY:	Stable.
INCOMPATIBLE MATERIALS:	Water, Acids, Boric Oxide, Phosphorus Pentoxide.
REACTIVITY:	Reacts with liquid water to expand and produce heat; could burst containers or ignite combustible substances in contact.
HAZARDOUS DECOMPOSITION PRODUCTS:	None.

SEC. VI: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:	Skin Contact, Eye Contact, Inhalation of Dust, and Ingestion are potential routes of entry.
EFFECTS OF ACUTE EXPOSURE:	Irritation or burns to skin, nose, throat, and mucous membranes, sneezing, lacrimation. Coarse particles in eyes can cause serious burns. Burning sensation in mouth and stomach if sufficient ingested.
EFFECTS OF CHRONIC EXPOSURE:	Drying or cracking of skin, blinking of eye.
EXPOSURE LIMITS:	TWAEV - 2 mg/cu.m
IRRITANCY:	Irritates skin, eye, mucous membranes.
SENSITIZATION:	None reported.
SYNERGISTIC MATERIALS:	None.
OTHER:	No reported Carcinogenicity, Reproductive Effects, Teratogenicity or Mutagenicity.

SEC. VII: PREVENTATIVE MEASURES

PROTECTIVE EQUIPMENT:	Long-sleeved shirt, long pants extending over tops of work boots. Gauntlet-type work gloves. Eye goggles, Lightweight face mask.
ENGINEERING CONTROLS:	Provide mechanical ventilation in dusty areas.
LEAK AND SPILL PROCEDURES:	Substantial spills into streams or ponds should be contained and neutralized with acid. Normal clean-up for spills on land.
WASTE DISPOSAL:	Dispose in secure landfill.
HANDLING, STORAGE & SHIPPING:	No special handling equipment. Minimize production of dust. Keep product dry in storage and shipping.

SEC. VIII: FIRST AID MEASURES

INHALATION:	Remove from exposure.
INGESTION:	Drink plenty of water, fruit juice, or a mixture of 1 part vinegar in 2 parts water.
EYE:	Flush immediately with plenty of water and get medical attention.
SKIN:	Wash affected area with plenty of water.

PREPARATION OF MSDS:

Prepared By:-----Brenda Doucette-Carter----- Date: January 6, 2000

The information is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made to its accuracy, reliability or completeness. It is the user's responsibility to review this information, satisfy themself as to its suitability and completeness, and pass on the information to its employees or customers. Beachville Lime Limited does not accept responsibility for any loss or damage which may occur from the use of this information.

SODIUM CYANIDE

* *
* M S D S *
* *
* Canadian Centre for Occupational Health and Safety *
* * * * * * * * * * * * Issue : 2001-1 (February, 2001) *

*** IDENTIFICATION ***

MSDS RECORD NUMBER : 2437760
PRODUCT NAME(S) : Cyanide of Sodium
Prussiate of Soda
Sodium Cyanide
PRODUCT IDENTIFICATION : MSDS NUMBER: CEC00007
DATE OF MSDS : 2000-05-25
CURRENCY NOTE : This MSDS was provided to CCOHS in electronic form on 2000-10-30

*** MANUFACTURER INFORMATION ***

MANUFACTURER : DuPont Canada, Inc
ADDRESS : Post Office Box 2200
Streetsville
Mississauga Ontario
Canada L5M 2H3
Telephone: 800-387-2122 (Product Information)
EMERGENCY TELEPHONE NO. : 613-348-3616 (Transport, 24 HOURS)
613-348-3616 (Medical, 24 HOURS)

*** SUPPLIER/DISTRIBUTOR INFORMATION ***

SUPPLIER/DISTRIBUTOR : DuPont Canada, Inc
ADDRESS : Post Office Box 2200
Streetsville
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Telephone: 800-387-2122 (Product Information)
EMERGENCY TELEPHONE NO. : 613-348-3616 (Transport, 24 HOURS)
613-348-3616 (Medical, 24 HOURS)

*** MATERIAL SAFETY DATA ***

SODIUM CYANIDE

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"Cyanobrick", "Cyanogran" are registered trademarks of DuPont.

Corporate MSDS Number : DU000290
CAS Number : 143-33-9
Formula : NaCN
CAS Name : SODIUM CYANIDE
Grade : "CYANOBRIK"; "CYANOGRAN"

Product Use

Ore leaching and flotation

Tradenames and Synonyms

Cyanide of Sodium
Prussiate of Soda

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont Canada, Inc.
P.O. Box 2200
Streetsville
Mississauga, Ontario L5M 2H3

PHONE NUMBERS
Product Information : 1-800-387-2122
Transport Emergency : 1-613-348-3616 (24 HOURS)
Medical Emergency : 1-613-348-3616 (24 HOURS)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
*SODIUM CYANIDE	143-33-9	>96 WT%
OTHER SODIUM SALTS		<4 WT%

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

May be fatal if inhaled, swallowed, or absorbed through the skin. Contact with acids or weak alkalies liberates poisonous gas. May cause eye burns and skin irritation and rashes. May cause rapid respirations and pulse, reddened eyes, flushed skin, weakness, headache, dizziness, confusion, nausea and vomiting. These may be followed by unconsciousness, convulsions, cessation of breathing, loss of blood pressure, heart beat irregularities, dilation of pupils and death. The lungs may fill with liquid.

SODIUM CYANIDE:

Skin contact with Sodium cyanide may cause skin irritation with discomfort or rash; strong solutions may cause skin burns or ulceration. Evidence suggests that significant skin permeation can occur. There are no reports of human sensitization.

Eye contact with Sodium cyanide may cause eye irritation with discomfort, tearing, or blurred vision. Prolonged exposure may cause eye corrosion with corneal or conjunctival ulceration.

Inhalation, ingestion or skin contact of Sodium cyanide may cause nonspecific discomfort such as:

Reddening of the eyes	Nausea
Irritation of the throat	Headache
Palpitation	Weakness of arms and legs
Difficulty in breathing	Giddiness
Salivation	Collapse
Numbness	Convulsions

Central nervous system stimulation followed by central nervous system depression may occur with hypoxic convulsions and death due to respiratory arrest.

Higher exposures may lead to rapid respiration and pulse, flushing, cyanosis, acidosis, thyroid effects sometimes observed in individuals with nutritional deficiencies symptoms associated with Parkinsonian Syndrome; or pulmonary edema and fatality from gross overexposure. In the few cases of disturbance of vision or damage to the optic nerve or retina attributable to cyanide poisoning, the poisoning has been acute and severe, and lethal or near lethal. There are reports of increased incidence of insomnia, agitated sleep, tremors, dermatitis and nose bleed in electroplating workers.

Individuals with preexisting diseases of the central nervous system may have increased susceptibility to the toxicity of

excessive exposures.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

Compound-Specific First Aid & Notes to Physicians

A step-wise procedure of "First Aid" and "Medical Treatment" is recommended for any cyanide poisoning. Treatment requires immediate action to prevent harm or death. First Aid is given initially, and experience shows that when given promptly it is usually the only treatment needed for typical accidental poisonings. Medical treatment may be needed for more severe poisoning.

First aid treatment uses oxygen and amyl nitrite and can be given by a first responder before medical help arrives.

Medical treatment is given if the patient does not respond to First Aid. Medical Treatment is a more aggressive treatment requiring intravenous injections of sodium nitrite and sodium thiosulfate, and must be administered by qualified medical personnel. It provides a larger quantity of antidote which helps eliminate cyanide from the body. Even if a doctor or nurse is present, the need for fast treatment dictates using the First Aid procedure with oxygen and amyl nitrite while Medical Treatment materials for intravenous injection are being prepared. When antidotal treatment is necessary, it should be started immediately.

IN CASE OF CYANIDE POISONING, START FIRST AID TREATMENT IMMEDIATELY, THEN CALL A PHYSICIAN.

In most cases, cyanide poisoning causes a deceptively healthy pink to red skin color. However, if a physical injury or lack of oxygen is involved, the skin color may be bluish. Reddening of the eyes and pupil dilation are also symptoms of cyanide poisoning. Cyanosis (blue discoloration of the skin) tends to be associated with severe cyanide poisonings whereas red coloration

of the skin is more common in industrial accidents that involve less cyanide.

All persons with the potential for cyanide poisoning should be trained to provide immediate First Aid using oxygen and amyl nitrite. Always have on hand the materials listed below in the FIRST AID and MEDICAL TREATMENT Sections. Actions to be taken in case of cyanide poisoning should be planned and practiced before beginning work with cyanides. Identification of community

hospital resources and emergency medical squads in order to equip and train them on handling of cyanide emergencies is essential.

FIRST AID SUPPLIES

Adequate First Aid supplies for cyanide poisoning should be conveniently placed throughout the cyanide areas and should be immediately accessible at all times, but secured against tampering or theft. Supplies should be routinely inspected (typically daily) by people who would use them in an emergency. The total number of each item listed below should be adequate to handle the largest number of exposure cases reasonably anticipated, taking into account that some supplies may be wasted, destroyed, or inaccessible in the emergency.

1. Oxygen Resuscitators - Any positive pressure resuscitator capable of giving oxygen in conjunction with amyl nitrite can be used.

2. Amyl Nitrite Ampoules (antidote) - One box of one dozen ampoules per station is usually satisfactory. Locate stations throughout the cyanide area.

CAUTION: Amyl nitrite is not stable and must be replaced every 1-2 years, or earlier depending on storage conditions. Store in the original dated box away from heat and freezing temperatures. Do not store amyl nitrite or Medical Treatment Kits (see below) in enclosed areas where temperatures can exceed 60-66 deg C (140-150 deg F) or where freezing may occur. Storage in high temperature climates may require replacement before the expiration date, unless cool storage is provided. Avoid excessive cold storage which will reduce the vapor pressure of amyl nitrite and, hence, its effectiveness. A common DuPont practice is to use the resuscitator as the storage point for the amyl nitrite ampoules.

3. A set of cyanide first aid instructions should be located at each amyl nitrite storage location. Workers should be fully trained since in a real emergency there will be insufficient time to "read the book".

Amyl Nitrite Notes:

1. Amyl nitrite is highly volatile and flammable; do not smoke or use around a source of ignition.

2. If treating a patient in a windy or drafty area, provide something--a rag, shirt, wall, drum, cupped hand, etc.--to prevent the amyl nitrite vapors from being blown away. Keep the ampoule upwind from the nose. The objective is to get amyl nitrite into the patient's lungs.

3. Rescuers should avoid amyl nitrite inhalation to avoid becoming dizzy and losing competence.

4. Lay the patient down. Since amyl nitrite dilates blood vessels and lowers blood pressure, laying the patient down will help prevent unconsciousness.

5. Do not overuse. Monitor the patient for shock which would indicate excessive use. This has not occurred in practice at DuPont plants, and we are not aware of any serious after effects from treatment with amyl nitrite.

6. Review and adhere to proper storage, inspection and replacement requirements given above.

FIRST AID PROCEDURE

The exposed person should be removed from the contaminated area, contaminated clothing removed and the individual washed off. The rescuer and/or person providing first aid is subject to exposure if the affected person's clothing is wetted with cyanide. For HYDROGEN CYANIDE, rescue of a wetted person should be done wearing self-contained breathing air (SCBA), rubber gloves, and other personal protective equipment as necessary. For SODIUM CYANIDE or POTASSIUM CYANIDE dusts or solutions, SCBA is normally not needed. Contact with HYDROGEN CYANIDE must be avoided by rescuers, but short contact from solid cyanide or solutions is normally not a problem if skin washing is prompt. As soon as possible, even while clothing is being removed or washing is taking place, First Aid should be started.

1. If no symptoms are evident, no treatment is necessary; decontaminate patient.

2. If conscious but symptoms (nausea, difficult breathing, dizziness, etc.) are evident, give oxygen.

3. If consciousness is impaired (non-responsiveness, slurred speech, confusion, drowsiness) or the patient is unconscious but breathing, give oxygen and amyl nitrite by means of a resuscitator.

To give amyl nitrite, break an ampoule in a gauze pad and insert into lip of the resuscitator mask for 15 seconds, then take away for fifteen seconds. Repeat 5-6 times. If necessary, use a fresh ampoule every 3 minutes until the patient regains consciousness (usually 1-4 ampoules). Administer oxygen continuously. Guard against the ampoule entering the patient's mouth.

4. If not breathing, give oxygen and amyl nitrite immediately by means of a positive pressure resuscitator (artificial respiration).

Administer amyl nitrite as discussed in #3 and continue to give oxygen simultaneously to aid recovery. If massive exposure occurred, consider keeping the first one or two ampoules in the lip of the resuscitator mask continuously. Guard against the ampoule entering the patient's mouth.

INHALATION

If consciousness is impaired, oxygen and amyl nitrite should be administered as indicated under First Aid Procedure. Carry the

patient to an uncontaminated atmosphere. Keep the patient warm and calm. Call a physician.

SKIN CONTACT

If consciousness is impaired, oxygen and amyl nitrite should be administered as indicated under First Aid Procedure. Immediately flush with large quantities of water for up to 5 minutes after contact or suspected contact, and completely remove all contaminated clothing (including shoes or boots). Flushing with water for up to 5 minutes is generally sufficient to effectively remove cyanide from the patient's skin. Call a physician.

EYE CONTACT

Immediately flush the eyes with large quantities of water for up to 5 minutes while holding the eyelids apart. Do not try to neutralize with "acids" or "alkalis". Eye contact will require further evaluation and possibly treatment. Continue rinsing the eye during transport to the hospital. See a physician. Oxygen and amyl nitrite should be used as indicated above.

INGESTION

If the patient is conscious, immediately have patient spit and rinse mouth with water then give patient activated charcoal slurry. If consciousness is impaired, or the patient is unconscious, immediately administer oxygen and amyl nitrite as discussed in the First Aid Procedure Section. Never give anything by mouth to an unconscious person. Give patient activated charcoal slurry ONLY when consciousness is regained. DO NOT give Syrup of Ipecac or other emetics since they will induce vomiting which could interfere with resuscitator use. Continue to give oxygen. Call a physician.

NOTE: To prepare activated charcoal slurry, mix 50 grams of activated charcoal in 400 mL (about 2 cups) water and mix thoroughly. Give 5 mL/kg, or 350 mL for an average adult.

MEDICAL TREATMENT

EXPERIENCE SHOWS THAT FIRST AID GIVEN PROMPTLY IS USUALLY THE ONLY TREATMENT NEEDED FOR TYPICAL INDUSTRIAL CYANIDE POISONING. LARGER CYANIDE POISONINGS INCREASE THE NEED FOR MEDICAL TREATMENT.

Do not over-react. Although prompt action is essential when poisoning has occurred, a lucid, conscious person who can communicate may not have significant cyanide poisoning and Medical Treatment will rarely be necessary. "Treat what you see" is a good rule of thumb. Mildly symptomatic patients who remain alert may be managed by supportive care only.

The half-life of cyanide in the body is about 20-90 minutes. In diagnosis and monitoring of patients, the critical period for treatment is short. Normally the effects from cyanide poisoning occur in the first few minutes and will indicate the degree of poisoning.

"Preventive" use of cyanide antidote in the absence of impaired consciousness is not normally warranted. Keep the patient calm by assurance over the next 30 minutes, and closely monitor the patient's condition. If skin contact with cyanide has been prolonged and/or extensive cyanide has been ingested, watch the individual closely for at least 30 minutes to assure there are no effects from delayed absorption of cyanide into the blood stream.

Consider assuring intravenous access in cases where significant toxicity is possible. Establishment of IV access with normal saline, Ringer's lactate, or other available IV fluid will facilitate administration of the antidote if necessary.

MEDICAL TREATMENT KITS

Medical Treatment Kits for cyanide poisoning should be conveniently located for easy access. Materials for intravenous injection are intended for use only by a physician or fully qualified medical personnel. The location of kits should be carefully planned as part of the emergency program. Kits should always be taken with patient during transport to medical facilities to ensure availability. Suggested locations for kits include:

- o in or near the cyanide area
- o plant medical station
- o guard house entrance
- o local hospital
- o doctor's office and residence

CAUTION: Avoid storing amyl nitrite or Medical Treatment Kits in areas subject to extreme heat or freezing conditions. Kits and amyl nitrite should be accessible but secured against tampering. They should be inspected regularly and the amyl nitrite ampoules replaced every 1-2 years (See First Aid Supplies Section). Medical Treatment Kits should contain the following:

1. One box containing one dozen (12) amyl nitrite ampoules.

2. Two sterile ampoules of sodium nitrite solution (10 mL of a 3% solution in each).

3. Two sterile ampoules of sodium thiosulfate solution (50 mL of a 25% solution in each).

4. One 10 mL sterile syringe. One 50 mL sterile syringe. Two sterile intravenous needles. One tourniquet.

5. One dozen gauze pads.

6. Latex gloves.