Hazardous Material Disclosure

Business Information / Chemical Inventory / Business Emergency Plan

GARDEN GROVE FIRE DEPARTMENT
11301 Acacia parkway
Garden Grove, CA 92840
Bus. (714) 741-5600 Fax (714) 741-5640
Hazardous Materials Coordinator
(714) 741-5636

Date: 5/9/2013

Address: 7151 PATTERSON DR File No: 8676

Occupant or DBA: PACIFIC WAVE SYSTEM

Owner/Manager: DAVID BIELE Phone: [redacted]

☐ California Health and Safety Code, Section 6.95, you are required to properly complete the Business Emergency Plan (BMP) packet. You are required to return the BEP packet, Hazardous Materials Disclosure Forms, and all material safety data sheets within fifteen (15) days to the Garden Grove Fire Department. HazMat Coord. (714) 741-5636

An inspection at the above location/occupancy revealed the following violation(s):

Violation(s): CA Health and Safety Code Chapter 6.95, Article 1 and Title 19, §2729 et seq., California Code of Regulations (CCR)

- ☑ Complete Hazardous Materials Disclosure packet, HSC Chapter 6.95, Title 19 Div 2 Chapter 3, CFC 8001.3.2
- ☑ Failure to submit a Business Emergency Plan. [HSC 25505(a)(1)]; CFC 8001.3.2
- ☑ Failure to review and/or revise the Business Emergency Plan as required [HSC 25505(b)&(c)]
- ☑ Chemical inventory is incomplete and/or requires update. [HSC 25509]
- ☐ The Emergency Response Plan is inadequate and/or does not address the following issues and shall be immediately revised and resubmitted: [HSC 25504(b)&(c)]
  - ☑ Notification Procedures
  - ☑ Mitigation Procedures
  - ☑ Evacuation Procedures
  - ☑ Employee Training
- ☑ Business Owner/Operator page is incomplete or needs to be updated. [HSC 25509]
- ☑ Failure to provide name, title, and 24-hour number of emergency contact(s). [HSC 25509(a)(7)]
- ☑ Site Map is incomplete or insufficient. [HSC 25509]
- ☑ Failure to report a release or threatened release. [HSC 25507]
- ☑ Failure to report a change in business or chemical inventory within 30 days of the following event(s): [HSC 25510]
  - ☐ 100% or more increase in the quantity of a disclosed material
  - ☐ Addition of a previously undisclosed material
  - DN ☑ Change in business address
  - DN ☑ Change in business ownership
  - D.N ☑ Change of business name NONE OK DN 5/9/13
  - ☐ Other (See comments below):

Violation(s): California Fire Code 2001, Articles 79 & 80, Title 19 Part 5, California Code of Regulations (CCR)

- ☐ Provide for secondary containment for hazardous materials liquids and solids (CFC 8003.1.3.3)
- ☐ Provide spill control for hazardous materials liquids (CFC 8003.1.3.2)
- ☐ Provide approved cabinet if more than 10 gallons of flammable liquids (CFC 7902.5)
- ☑ Provide placarding and signs (NFPA 704, CFC Article 79 §7901.9, Article 80 §8001.7-8)
- ☑ **No Violations Found**

Additional Violations and/or Notes: SMALL E-SUBMIT

Responsible Party: [signature] Re-inspection Date: 5-9-2013

The above are violations of California law and require immediate correction. Failure to correct violations is subject to civil penalties.

Fire Dept. Inspector: 2867 Don Nguyen ID #: 2867

Condition Upon Re-inspection: DONE. ESUBMIT IS IN AND CLEAR. Date: 8/6/2013

CITY OF GARDEN GROVE FIRE DEPARTMENT

11301 Acacia Parkway, Garden Grove, CA 92842 (714) 741-5600 (714) 741-5636

Hazardous Materials Business Information Form

FORM 1

BUSINESS INFORMATION

FACILITY # (Supplied by GGFD) 30 035	BEGINNING DATE 1	ENDING DATE 2	
BUSINESS NAME 4: Pacific Wave Systems		BUSINESS PHONE 5: 714-893-0152	
BUSINESS SITE ADDRESS 6: 7151 Patterson Drive			
CITY 7: GARDEN GROVE	STATE 8: CA	ZIP 9: 92841	
DUN & BRADSTREET 10: 80791236 5	SIC CODE (4 DIGIT #) 11: 3499	FIRE DISTRICT 12	
COUNTY 13: ORANGE			
BUSINESS OPERATOR NAME 14: Garrett Biele	OPERATOR'S PHONE 15: 714-893-0152		

BUSINESS OWNER

OWNER NAME 16: David Biele	OWNER PHONE 17: 714-893-0152	
OWNER MAILING ADDRESS 18: 7151 Patterson Drive		
CITY 19: Garden Grove	STATE 20: CA	ZIP 21: 92841

ENVIRONMENTAL CONTACT

CONTACT NAME 22: Garrett Biele	CONTACT PHONE 23	
CONTACT MAILING ADDRESS 24		
CITY 25	STATE 26	ZIP 27

EMERGENCY CONTACTS

PRIMARY	SECONDARY
NAME 28: David Biele	NAME 33: Garrett Biele
TITLE 29: President	TITLE 34: General Manager
BUSINESS PHONE 30: 714-893-0152	BUSINESS PHONE 35: 714-893-0152
24-HR. PHON [redacted] 31	24-HR. PHONE 36
PAGER # 32	PAGER # 37

ADDITIONAL LOCALLY COLLECTED INFORMATION

DESCRIBE THE TYPE OF BUSINESS OPERATION: 38: Manufacturing Waveguides for Aerospace	TOTAL # OF EMPLOYEES 39: 84
BILLING ADDRESS (IF DIFFERENT FROM ABOVE) 40	ATTENTION 41
PROPERTY OWNER NAME 42 / ADDRESS 43	PHONE 44

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE 45	DATE 46: 7/22/11
NAME OF SIGNER (print) 47: Garrett Biele	NAME OF DOCUMENT PREPARER (print) 49: Macario Rincon JR
TITLE OF SIGNER 48: General Manager	TITLE OF DOCUMENT PREPARER 50: Foreman

City of Garden Grove
11301 Acacia Parkway
Garden Grove, CA 92842
(714) 741-5636

CUPA

BUSINESS ACTIVITIES

FACILITY INFORMATION

I. FACILITY INFORMATION

FACILITY ID# 3 0 [ ] 0 3 5 [ ] [ ] [ ] [ ] [ ] [ ] [ ] 1.

EPA ID # (Hazardous Waste Only) CAL000342646 2.

BUSINESS NAME (Same as FACILITY NAME or DBA-Doing Business As) 3.

Pacific Wave Systems

II. ACTIVITIES DECLARATION

NOTE: If you check YES to any part of this list, please submit the Business Owner/Operator Identification page.

Does your facility...	If Yes, please complete these pages of the UPCF...	
A. HAZARDOUS MATERIALS Have on site (for any purpose) hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in ASTs and USTs); or the applicable Federal threshold quantity for an extremely hazardous substance specified in 40 CFR Part 355, Appendix A or B; or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	☒ YES ☐ NO 4.	√ HAZARDOUS MATERIALS INVENTORY – CHEMICAL DESCRIPTION (Form3)
B. UNDERGROUND STORAGE TANKS (USTs)		
1. Own or operate underground storage tanks?	☐ YES ☒ NO 5.	√ UST FACILITY (Formerly SWRCB Form A) √ UST TANK (one page per tank)(Formerly Form B)
2. Intent to upgrade existing or install new USTs?	☐ YES ☒ NO 6.	√ UST FACILITY √ UST TANK (one per tank) √ UST INSTALLATION – CERTIFICATE OF COMPLIANCE (one page per tank)(Formerly Form C)
3. Need to report closing a UST?	☐ YES ☒ NO 7.	√ UST TANK (closure portion-one page per tank)
C. ABOVE GROUND PETROLEUM STORAGE TANKS (ASTs)		
1. Own or operate ASTs above these thresholds: - any tank capacity is greater than 660 gallons, or - the total aggregate capacity for the entire facility (ASTs, drums and portable containers) greater than 1,320 gallons?	☐ YES ☒ NO 8.	√ NO FORM REQUIRED TO CUPAS
D. HAZARDOUS WASTE		
1. Generate hazardous waste?	☒ YES ☐ NO 9.	√ EPA ID #-provide at the top of this page
2. Recycle more than 100 kg/month of excluded or exempted recyclable materials (per HSC §25143.2)?	☐ YES ☒ NO 10.	√ RECYCLABLE MATERIALS REPORT (one per recycler)
3. Treat hazardous waste on site?	☐ YES ☒ NO 11.	√ ONSITE HAZARDOUS WASTE TREATMENT – FACILITY (Formerly DTSC Forms 1772) √ ONSITE HAZARDOUS WASTE TREATMENT – UNIT (one page per unit) (Formerly DTSC Forms 1772A,B,C,D and L)
4. Treatment subject to financial assurance requirements (for Permit by Rule and Condition Authorization)?	☐ YES ☒ NO 12.	√ CERTIFICATION OF FINANCIAL ASSURANCE (Formerly DTSC Form 1232)
5. Consolidate hazardous waste generated at a remove site?	☐ YES ☒ NO 13.	√ REMOVE WASTE/CONSOLIDATION SITE ANNUAL NOTIFICATION (Formerly DTSC Form 1196)
6. Need to report the closure/removal of a tank that was classified waste and cleaned onsite?	☐ YES ☒ NO 14.	√ HAZARDOUS WASTE TANK CLOSURE CERTIFICATION (Formerly DTSC Form 1249)
E. LOCAL REQUIREMENTS Cal-ARP: California Accidental Release Prevention Program *H&SC Chapter 6.95, Article 2, §25531 et seq* - Stationary Source with more than a Threshold Quantity of a Regulated Substance in a Process	☐ YES ☒ NO 15.	√ REGULATED SUBSTANCE REPORTING FORM (Orange County CUPA)

HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

☐ ADD ☐ DELETE ☒ REVISED 1 Page 4 of ____ 2

FACILITY ID# 3 0 0 0 3 5 38 BUSINESS NAME PACIFIC WAVE SYSTEMS 3

I. FACILITY INFORMATION

CHEMICAL LOCATION North Wall (Forming Area) 4

CONFIDENTIAL LOCATION EPCRA ☐ Yes ☒ No 5 | MAP # 1 6 | GRID # 7

II. CHEMICAL INFORMATION

CHEMICAL NAME O_2 | WASTE ☐ Yes 8 | TRADE SECRET ☐ Yes ☒ No 11 (* If EPCRA see instructions)

COMMON NAME Oxygen - 2 tanks. 9 | An EHS Chemical ☐ Yes ☐ No 12 (*If EHS is "Yes", all amounts must be LBS)

CAS # 7782-44-7 10 | FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE (Check one item only) ☒ a. PURE ☐ b. MIXTURE ☐ c. WASTE 14 | RADIOACTIVE ☐ Yes ☒ No 15 | CURIES 16

PHYSICAL STATE (Check one item only) ☐ a. SOLID ☐ b. LIQUID ☒ c. GAS 17 | FED HAZARD CATEGORIES ☒ a. FIRE ☐ b. REACTIVE ☒ c. PRESSURE RELEASE 18 ☐ d. ACUTE HEALTH ☐ e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 2 tanks 19 | MAXIMUM DAILY AMOUNT 2 tank 20 | ANNUAL WASTE AMOUNT NA 21 | STATE WASTE CODE NA 22

UNITS ☐ a. GALLONS ☐ b. CUBIC FEET 23 ☐ c. POUNDS ☐ d. TONS (*If EHS, amount must be in pounds.) | DAYS ON SITE 365 DAYS 24 | LARGEST CONTAINER 225 cu feet 25

STORAGE CONTAINER (Check all that apply) 26
☐ a. ABOVEGROUND TANK ☐ b. UNDERGROUND TANK ☐ c. TANK INSIDE BLDG ☐ d STEEL DRUM ☐ e. PLASTIC DRUM ☐ f. NONMETALLIC DRUM ☐ g. METAL CONTAINER ☐ h. CARBOY ☐ i. VAT ☐ l. FIBER DRUM ☐ l. BAG(S) ☐ l. BOX(S) ☒ m CYLINDER ☐ n. GLASS CONTAINER ☐ o PLASTIC CONTAINER ☐ p. IN MACH OR EQUIP ☐ q. TANK WAGON ☐ r. RAIL CAR ☐ s. TOTE BIN ☐ t. OTHER____

STORAGE PRESSURE ☐ a. AMBIENT ☒ a. ABOVE AMBIENT ☐ c. BELOW AMBIENT 27

STORAGE TEMPERATURE ☒ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT ☐ d. CRYOGENIC 28

	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	100 29	O_2 30	☐ Yes ☐ No 31	7782-44-7 32
2	29	30	☐ Yes ☐ No 31	32
3	29	30	☐ Yes ☐ No 31	32
4	29	30	☐ Yes ☐ No 31	32
5	29	30	☐ Yes ☐ No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

PLACARDING INFORMATION

UNDOT # UN1072 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS 2.2 34
Refer to shipping papers or MSDS

EPCRA ☒ YES ☐ NO 35

X _____ 36
If EPCRA, Please Sign Here

NFPA 704 HAZARD DIAMOND
FIRE (RED) 0
HEALTH (BLUE) 0
REACTIVE (YELLOW) 0
SPECIAL HAZARD WHITE OX/W. 37

MAKE AS MANY COPIES OF CHEMICAL INVENTORY FORM AS NEEDED

Revised 2/02 -- haz-inven2.doc

BOC GASES

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: OXYGEN

1. Chemical Product and Company Identification

BOC Gases,
Division of
The BOC Group, Inc.
575 Mountain Avenue
Murray Hill, NJ 07974

TELEPHONE NUMBER: (908) 464-8100
24-HOUR EMERGENCY TELEPHONE NUMBER:
CHEMTREC (800) 424-9300

BOC Gases
Division of
BOC Canada Limited
5975 Falbourne Street, Unit 2
Mississauga, Ontario L5R 3W6

TELEPHONE NUMBER: (905) 501-1700
24-HOUR EMERGENCY TELEPHONE NUMBER:
(905) 501-0802
EMERGENCY RESPONSE PLAN NO: 20101

PRODUCT NAME: OXYGEN
CHEMICAL NAME: Oxygen
COMMON NAMES/SYNONYMS: None
TDG (Canada) CLASSIFICATION: 2.2 (5.1)
WHMIS CLASSIFICATION: A, C

PREPARED BY: Loss Control (908)464-8100/(905)501-1700
PREPARATION DATE: 6/1/95
REVIEW DATES: 6/7/96

2. Composition, Information on Ingredients

INGREDIENT	% VOLUME	PEL-OSHA[1]	TLV-ACGIH[2]	LD_{50} or LC_{50} Route/Species
Oxygen FORMULA: O_2 CAS: 7782-44-7 RTECS #: RS2060000	99.6 to 100.0	Not Available	Not Available	Not Available

[1] As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

[2] As stated in the ACGIH 1994-95 Threshold Limit Values for Chemical Substances and Physical Agents

3. Hazards Identification

EMERGENCY OVERVIEW

Elevated oxygen levels may result in cough and other pulmonary changes. High concentrations of oxygen (greater than 75%) causes symptoms of hyperoxia which included cramps, nausea, dizziness, hypothermia, ambylopia, respiration difficulties, bradycardia, fainting spells and convulsions capable of leading to death. Nonflammable. Oxidizer, will accelerate combustion.

ROUTE OF ENTRY:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
No	No	No	Yes	No

HEALTH EFFECTS:

Exposure Limits	Irritant	Sensitization
No	No	No
Teratogen	Reproductive Hazard	Mutagen
No	No	Yes
Synergistic Effects		
None known		

Carcinogenicity: – NTP: No IARC: No OSHA: No

EYE EFFECTS:
Adverse effects not anticipated.

SKIN EFFECTS:
Adverse effects not anticipated.

INGESTION EFFECTS:
Adverse effects not anticipated.

INHALATION EFFECTS:
High concentrations of oxygen (greater than 75%) causes symptoms of hyperoxia which included cramps, nausea, dizziness, hypothermia, ambylopia, respiration difficulties, bradycardia, fainting spells and convulsions capable of leading to death. The property is that of hyperoxia which leads to pneumonia. Concentrations between 25 and 75% present a risk of inflammation of organic matter in the body.

Oxygen concentrations between 20 to 95% have produced genetic changes in mammalian cell assay test systems.

NFPA HAZARD CODES	HMIS HAZARD CODES	RATINGS SYSTEM
Health: 0	Health: 0	0 = No Hazard
Flammability: 0	Flammability: 0	1 = Slight Hazard
Reactivity: 0	Reactivity: 0	2 = Moderate Hazard
		3 = Serious Hazard
		4 = Severe Hazard

4. First Aid Measures

EYES:
Never introduce ointment or oil into the eyes without medical advice. If pain is present, refer the victim to an ophthalmologist for treatment and follow up.

SKIN:
Remove contaminated clothing and flush affected areas with lukewarm water. If irritation persists, seek medical attention.

INGESTION:
Ingestion is not anticipated.

INHALATION:
PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO OXYGEN. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Further treatment should be symptomatic and supportive. Inform the treating physician that the patient could be experiencing hyperoxia.

5. Fire Fighting Measures

Conditions of Flammability: Not flammable, Oxidizer		
Flash point: None	Method: Not Applicable	Autoignition Temperature: None
LEL(%): None	UEL(%): None	
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

FIRE AND EXPLOSION HAZARDS:
High oxygen concentrations vigorously accelerate combustion.

EXTINGUISHING MEDIA:
Water spray to keep cylinders cool. Extinguishing agent appropriate for the combustible material.

FIRE FIGHTING INSTRUCTIONS:
If possible, stop the flow of oxygen which is supporting the fire.

6. Accidental Release Measures

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest BOC location.

7. Handling and Storage

Electrical classification:
Nonhazardous

Dry product is noncorrosive and may be used with all materials of construction. Moisture causes metal oxides which are formed with air to be hydrated so that they include volume and lose their protective role (rust formation). Concentrations of SO_2, Cl_2, salt, etc. in the moisture enhances the rusting of metals in air.

Carbon steels and low alloy steels are acceptable for use at lower pressures.

For high pressure applications stainless steels are acceptable as are copper and its alloys, nickel and its alloys, brass bronze, silicon alloys, Monel ®, Inconel ® and beryllium. Lead and silver or lead tin alloys are good gasket materials. Teflon ®, Teflon ® composites, or Kel-F ® are preferred non-metallic gasket materials.

Check with the supplier to verify oxygen compatibility for the service conditions.
Oxygen should not be used as a substitute for compressed air in pneumatic equipment since this type generally contains flammable lubricants.

Stationary customer site vessels should operate in accordance with the manufacturer's and BOC's instruction. Do not attempt to repair, adjust or in any other way modify the operation of these vessels. If there is a malfunction or other type of operations problem with the vessel, contact the closest BOC location immediately.

Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the system.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" signs in the storage area or use area. There should be no sources of ignition in the storage or use area.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-14 and Safety Bulletin SB-2.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8. Exposure Controls, Personal Protection

EXPOSURE LIMITS[1]:

INGREDIENT	% VOLUME	PEL-OSHA[2]	TLV-ACGIH[3]	LD_{50} or LC_{50} Route/Species
Oxygen FORMULA: O_2 CAS: 7782-44-7 RTECS #: RS2060000	99.6 to 100.0	Not Available	Not Available	Not Available

[1] Refer to individual state of provincial regulations, as applicable, for limits which may be more stringent than those listed here.
[2] As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)
[3] As stated in the ACGIH 1994-1995 Threshold Limit Values for Chemical Substances and Physical Agents.

ENGINEERING CONTROLS:
Use local exhaust to prevent accumulation of high concentrations that increase the oxygen level in air to more than 25%.

EYE/FACE PROTECTION:
Safety goggles or glasses as appropriate for the job.

SKIN PROTECTION:
Protective gloves made of any suitable material appropriate for the job.

OTHER/GENERAL PROTECTION:
Safety shoes, safety shower.

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Above critical temp.	
Vapor density (Air = 1)	: 1.11	
Evaporation point	: Not Available	
Boiling point	: -297.3	°F
	: -182.9	°C
Freezing point	: -361.8	°F
	: -218.8	°C
pH	: Not Applicable	
Specific gravity at STP	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H20)	: Slightly soluble	
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless, odorless gas	

10. Stability and Reactivity

STABILITY:
Stable.

INCOMPATIBLE MATERIALS:
All flammable materials.

HAZARDOUS DECOMPOSITION PRODUCTS:
None.

HAZARDOUS POLYMERIZATION:
Will not occur.

11. Toxicological Information

MUTAGENIC:
Oxygen concentrations between 20 to 95% have produced genetic changes in mammalian cell assay test systems.

12. Ecological Information

No data given.

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to BOC Gases or authorized distributor for proper disposal.

14. Transport Information

PARAMETER	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Oxygen, compressed	Oxygen, compressed
HAZARD CLASS:	2.2	2.2 (5.1)
IDENTIFICATION NUMBER:	UN 1072	UN 1072
SHIPPING LABEL:	NONFLAMMABLE GAS, OXIDIZER	NONFLAMMABLE GAS, OXIDIZER

15. Regulatory Information

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA TITLE III - HAZARD CLASSES:
Fire Hazard
Sudden Release of Pressure Hazard

16. Other Information

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:
Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

☒ ADD ☐ DELETE ☐ REVISED 1 Page 30 of ____ 2

FACILITY ID# 3 0 0 3 5 38 BUSINESS NAME Pacific Wave Systems 3

I. FACILITY INFORMATION

CHEMICAL LOCATION Rear Chemical Storage Locker 4

CONFIDENTIAL LOCATION EPCRA ☐ Yes ☐ No 5 | MAP # 1 6 | GRID # 7

II. CHEMICAL INFORMATION

CHEMICAL NAME | WASTE ☐ Yes 8 | TRADE SECRET ☐ Yes ☐ No 11 * If EPCRA see instructions

COMMON NAME Simple Green Degreaser 9 | An EHS Chemical ☐ Yes ☐ No 12 *If EHS is "Yes", all amounts must be LBS

CAS # 10 | FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE (Check one item only) ☐ a. PURE ☒ b. MIXTURE ☐ c. WASTE 14 | RADIOACTIVE ☐ Yes ☒ No 15 | CURIES 16

PHYSICAL STATE (Check one item only) ☐ a. SOLID ☒ b. LIQUID ☐ c. GAS 17 | FED HAZARD CATEGORIES ☐ a. FIRE ☐ b. REACTIVE ☐ c. PRESSURE RELEASE ☐ d. ACUTE HEALTH ☐ e. CHRONIC HEALTH 18

AVERAGE DAILY AMOUNT 19 | MAXIMUM DAILY AMOUNT 20 | ANNUAL WASTE AMOUNT 21 | STATE WASTE CODE 22

UNITS ☐ a. GALLONS ☐ b. CUBIC FEET 23 ☐ c. POUNDS ☐ d. TONS *If EHS, amount must be in pounds. | DAYS ON SITE 365 24 | LARGEST CONTAINER 55 gal 25

STORAGE CONTAINER (Check all that apply) 26

☐ a. ABOVEGROUND TANK	☒ e. PLASTIC DRUM	☐ i. VAT	☐ m CYLINDER	☐ q. TANK WAGON
☐ b. UNDERGROUND TANK	☐ f. NONMETALLIC DRUM	☐ l. FIBER DRUM	☐ n. GLASS CONTAINER	☐ r. RAIL CAR
☐ c. TANK INSIDE BLDG	☐ g. METAL CONTAINER	☐ l. BAG(S)	☐ o PLASTIC CONTAINER	☐ s. TOTE BIN
☐ d STEEL DRUM	☐ h. CARBOY	☐ l. BOX(S)	☐ p. IN MACH OR EQUIP	☐ t. OTHER____

STORAGE PRESSURE ☒ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT 27

STORAGE TEMPERATURE ☒ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT ☐ d. CRYOGENIC 28

	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	29	30	☐ Yes ☐ No 31	32
2	29	30	☐ Yes ☐ No 31	32
3	29	30	☐ Yes ☐ No 31	32
4	29	30	☐ Yes ☐ No 31	32
5	29	30	☐ Yes ☐ No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

PLACARDING INFORMATION

UNDOT # _____ 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS _____ 34
Refer to shipping papers or MSDS

EPCRA ☐ YES ☐ NO 35

X _____ 36
If EPCRA, Please Sign Here

NFPA 704 HAZARD DIAMOND

37

MAKE AS MANY COPIES OF CHEMICAL INVENTORY FORM AS NEEDED

Material Safety Data Sheet: **Simple Green® Heavy-Duty Cleaner and Degreaser (PWC)**
Version No. 1820308A Date of Issue: March 2008 *ANSI-Z400.1-2003 Format*

Section 1: PRODUCT & COMPANY IDENTIFICATION

Product Name: Simple Green® Heavy-Duty Cleaner and Degreaser

Additional Names: Simple Green® Heavy-Duty Cleaner and Degreaser (Pressure Washer Concentrate)

Manufacturer's Product Code Numbers: 18203 = 1 gallon bottles

Company: Sunshine Makers, Inc.
15922 Pacific Coast Highway
Huntington Harbour, CA 92649 USA

Telephone: 800-228-0709 • 562-795-6000 Fax: 562-592-3830

Emergency Phone: Chem-Tel 24-Hour Emergency Service: 800-255-3924

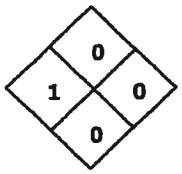
Use of Product: A concentrated cleaner used in pressure washing equipment or manual scrubbing for the removal of grease and grime of any hard non-porous outdoor washable surface.

Section 2: HAZARDS IDENTIFICATION

NONHAZARDOUS

Emergency Overview: CAUTION. Mild eye irritant. Simple Green® Heavy-Duty Cleaner/Degreaser is a turquoise liquid with a faint detergent-like odor. It is non-flammable, non-combustible, non-explosive, and non-reactive.

Hazard Rating (NFPA/HMIS)
Health = 1* Reactivity = 0
Fire = 0 Special = 0



Rating Scale
0 = minimal 1 = slight
2 = moderate 3 = serious
4 = severe

Eye Contact: * Mild Eye Irritant.

Skin Contact: No adverse effects expected under typical use conditions.

Ingestion: May cause stomach or intestinal upset if swallowed.

Inhalation: No adverse effects expected under typical use conditions.

Carcinogens: No ingredients are listed by OSHA, IARC, or NTP as known or suspected carcinogens.

Medical Conditions: No medical conditions are known to be aggravated by exposure to Simple Green® Heavy-Duty Cleaner/Degreaser.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

The only ingredient of Simple Green® Heavy-Duty Cleaner/Degreaser with established exposure limits is undiluted 2-butoxyethanol (<4%) (Butyl Cellosolve; CAS No. 111-76-2: the ACGIH TLV-TWA is 20 ppm (97 mg/m^3.)

Based upon chemical analysis, Simple Green® Heavy-Duty Cleaner/Degreaser contains no known EPA priority pollutants, heavy metals, or chemicals listed under RCRA, CERCLA, or CWA. Analysis by TCLP (Toxicity Characteristic Leaching Procedure) according to RCRA revealed no toxic organic or inorganic constituents.

All components of Simple Green® Heavy-Duty Cleaner/Degreaser are listed on the TSCA Chemical Substance Inventory.

Section 4: FIRST AID MEASURES

If in eyes: Reddening may develop. Immediately rinse the eye with large quantities of cool water; continue 10-15 minutes or until the material has been removed; be sure to remove contact lenses, if present, and to lift upper and lower lids during rinsing. Get medical attention if irritation persists.

If swallowed: Essentially non-toxic. Give several glasses of water to dilute; do not induce vomiting. If stomach upset occurs, consult physician.

Section 4: FIRST AID MEASURES – continued –

If on skin: Minimal effects, if any. Rinse skin with water, rinse shoes and launder clothing before reuse. Reversible reddening may occur in some dermal-sensitive users; thoroughly rinse area and get medical attention if reaction persists.

If inhaled: Non-toxic. Exposures to concentrate-mist may cause mild irritation of nasal passages or throat; remove to fresh air. Get medical attention if irritation persists.

Section 5: FIRE FIGHTING MEASURES

Simple Green® Heavy-Duty Cleaner/Degreaser is stable, not flammable, and will not burn.

Flash Point/Auto-Ignition:	Not flammable.
Flammability Limits:	Not flammable.
Extinguishing Media:	Not flammable / non-explosive. No special procedures required.
Special Fire Fighting Procedures:	None required.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid contact with eyes. Do not rub eyes with hands during cleanup. No special precautions for dermal contact are needed. Wash hands thoroughly after cleaning up spill or leak.

Procedure to follow in case of spill or leak: Evacuate area. Identify source of leak or spill and contain with sand, earth, or containment bin. Then proceed to clean up spill or leak.

Method for cleaning up: Recover all reusable material. Rinse area with plenty of water and mop to sanitary sewer.

Section 7: HANDLING AND STORAGE

No special handling is required. Avoid contact with eyes. Wash hands thoroughly after handling.

Keep in a closed plastic container. Store at ambient temperature. Avoid excessive heat.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits: The Simple Green® Heavy-Duty Cleaner/Degreaser formulation presents no health hazards to the user when used according to label directions for its intended purposes. Mild skin and eye irritation is possible.

Eye protection: Access to eye bath or water source is recommended in case of eye contact. Thoroughly wash hands after contact to prevent hand to eye transference. Wear chemical splash goggles or face shield when eye contact is possible due to splashing or spraying.

Skin protection: Gloves or other skin protection are generally not needed under normal use conditions. Prolonged soaking in the product, repeated skin exposure over long periods of time, pre-existing skin conditions such as dermatitis, or allergic response to contact with the product may warrant the use of gloves, barrier creams, chemical aprons or other skin protection. Prolonged exposure to concentrate may cause dryness.

General hygiene conditions: There are no known hazards associated with this material when used as recommended. The following general hygiene considerations are recognized as common good industrial hygiene practices:

- Avoid breathing vapor or mist.
- Avoid contact with eyes.
- Wash thoroughly after handling and before eating, drinking, or smoking.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Turquoise Liquid	**Vapor Pressure:**	18 mm Hg @ 20°C; 23.5 mm Hg @ 26°C
Odor:	Faint detergent-like odor	**Vapor Density:**	1.3 (air = 1)
Specific Gravity:	1.020 ± 0.015	**Density:**	8.5 pounds/gallon
pH:	9.35 ± 0.8	**Water Solubility:**	100%
Boiling Point:	100.6 °C (212 °F)	**Evaporation Rate:**	> 1 (butyl acetate = 1)
Freezing Point: Approx -9 °C (16 °F) *If product freezes, it will reconstitute without loss of efficacy when brought back to room temperature and agitated.*		**Flash Point:**	To boiling (ASTM D-93)
		Flame Extension:	N/A
VOC Composite Partial Pressure: 0.006 mmHg @ 20°C			
Volatile Organic Compounds (VOCs):		Cleaner meets CARB & BAAQMD regulations. Cleaner must be diluted 1:1 with water to Meet SCAQMD Rule 1171 & Rule 1122 VOC requirements for solvent cleaning operations.	
CARB Method 310	4.1%		
SCAQMD Method 313	2.8%		

Section 10: STABILITY AND REACTIVITY

Stability:	Stable.
Materials to Avoid:	None known.
Hazardous Decomposition Products:	None expected

Section 11: TOXICOLOGICAL INFORMATION

Toxicology information is based on chemical profile of ingredients and extrapolation of data from similar formulas. No animal testing has been conducted on this product.

Acute Toxicity:	Oral LD_{50} (rat)	>5 g/kg body weight*	**Calculation from OECD series on testing and assessment number 33, Chapter 3.2*
	Dermal LD_{50} (rabbit)	>2 g/kg body weight	
Eye Irritation:	Moderate / Mild reversible eye irritation may occur based on relevant laboratory studies. This potential is reduced by immediate rinsing of eyes in case of eye contact.		
Dermal Irritation:	Mild, reversible skin irritation may occur based on relevant laboratory studies. A 6-hour exposure to human skin under a patch did not produce irritation		
Repeat Exposure Via Skin Contact:	Based on relevant laboratory studies, no toxic effects are expected to be associated with daily skin exposures (with up to 2 g/kg/day tested for 13 weeks on rabbits). Skin irritation may, however, occur with repeated or prolonged exposures.		
Reproductive Effects Assessment:	Based on Relevant laboratory studies (CD-1 mouse 18-week fertility assessment continuous breeding), no adverse effects on reproduction, fertility, or health of offspring are expected.		

Section 12: ECOLOGICAL INFORMATION

Hazard to wild animals & aquatic organisms: Low, based on toxicological profile.

Biodegradability: Readily biodegradable based on biodegradation profile.

Environmental Toxicity Information: It is important not to allow the runoff from cleaning into closed systems such as decorative ponds. Always protect closed systems with tarps or dikes if necessary.

Section 12: ECOLOGICAL INFORMATION – continued –

Environmental Toxicity Information:
It is important not to allow the runoff from cleaning into closed systems such as decorative ponds. Always protect closed systems with tarps or dikes if necessary.

Additional information can be found in Section 15: REGULATORY INFORMATION.

Section 13: DISPOSAL CONSIDERATIONS

Appropriate Method for Disposal of Simple Green® Heavy-Duty Cleaner/Degreaser:

Unused Product:	*Dilute with water to use concentration (1:10 or greater) and dispose by sanitary sewer.
Used Product:	* Used product may be hazardous depending on the cleaning application and resulting contaminants.
Empty Containers:	*Triple-rinse with water and offer for recycling if available in your area. Otherwise, dispose as non-hazardous waste.

*Dispose of used or unused product, and empty containers in accordance with the local, State, Provincial, and Federal regulations for your location. Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

Section 14: TRANSPORT INFORMATION

This product is non-hazardous for storage and transport according to the U.S. Department of Transportation Regulations. Simple Green® Heavy-Duty Cleaner/Degreaser requires no special labeling or placarding to meet U.S. Department of Transportation requirements.

IATA Proper Shipping Name: Detergent solution Hazard Class: Non-hazardous UN Number: Not Required.

Section 15: REGULATORY INFORMATION

Reportable components:	None.		
VOC Reporting:	5% per gallon (0.425 pounds/gallon)		
SARA:	This material contains 2-Butoxyethanol, <4%, (CAS# 111-76-2) which is subject to the reporting requirements of Section 313 of SARA Title III and 49 CFR Part 373.		
All components are listed on:	EINECS and TSCA Inventory		
No components listed under:	Clean Air Act Section 112		
RCRA Status:	Not a hazardous waste.	CERCLA Status:	No components listed
TSCA TRI Reporting:	Not required / Not listed	CA PROP. 65 Status:	No components listed

Section 16: OTHER INFORMATION

Questions about the information found on this MSDS should be directed to:
SUNSHINE MAKERS, INC. – TECHNICAL DEPARTMENT
15922 Pacific Coast Hwy. Huntington Harbour, CA 92649
Phone: 800/228-0709 [8am-5pm Pacific time, Mon-Fri] *Fax:* 562/592-3830 *Email:* infoweb@simplegreen.com

DISCLAIMER: The information provided with this MSDS is furnished in good faith and without warranty of any kind. Personnel handling this material must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of this material and the safety and health of employees and customers. Sunshine Makers, Inc. assumes no additional liability or responsibility resulting from the use of, or reliance on this information.

HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

[✓] ADD [ ] DELETE [ ] REVISED 1

Page 10 of ___ 2

FACILITY ID# 3 0 0 0 3 5 38

BUSINESS NAME: PACIFIC WAVE SYSTEMS, INC. 3

I. FACILITY INFORMATION

CHEMICAL LOCATION: CHEMICAL LOCKER 4

CONFIDENTIAL LOCATION EPCRA [ ] Yes [✓] No 5

MAP # SITE MAP #1 6

GRID # 4B 7

II. CHEMICAL INFORMATION

CHEMICAL NAME: DOW CORNING (R) 236 DISPERSION

WASTE [ ] Yes 8

TRADE SECRET [ ] Yes [✓] No 11
If EPCRA see instructions

COMMON NAME: SILICONE IN SOLVENT 9

An EHS Chemical [ ] Yes [✓] No 12
*If EHS is "Yes", all amounts must be LBS

CAS #: SEE BELOW 10

FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE (Check one item only): [ ] a. PURE [✓] b. MIXTURE [ ] c. WASTE 14

RADIOACTIVE [ ] Yes [✓] No 15

CURIES N/A 16

PHYSICAL STATE (Check one item only): [ ] a. SOLID [✓] b. LIQUID [ ] c. GAS 17

FED HAZARD CATEGORIES: [ ] a. FIRE [ ] b. REACTIVE [ ] c. PRESSURE RELEASE 18; [✓] d. ACUTE HEALTH [ ] e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 5 GALS 19

MAXIMUM DAILY AMOUNT 5 GALS 20

ANNUAL WASTE AMOUNT 21

STATE WASTE CODE 22

UNITS: [✓] a. GALLONS [ ] b. CUBIC FEET 23 [ ] c. POUNDS [ ] d. TONS
*If EHS, amount must be in pounds.

DAYS ON SITE: 365 24

LARGEST CONTAINER: 5 GALS 25

STORAGE CONTAINER (Check all that apply): [ ] a. ABOVEGROUND TANK [ ] b. UNDERGROUND TANK [ ] c. TANK INSIDE BLDG [✓] d STEEL DRUM [ ] e. PLASTIC DRUM [ ] f. NONMETALLIC DRUM [ ] g. METAL CONTAINER [ ] h. CARBOY [ ] i. VAT [ ] l. FIBER DRUM [ ] l. BAG(S) [ ] l. BOX(S) [ ] m CYLINDER [ ] n. GLASS CONTAINER [ ] o PLASTIC CONTAINER [ ] p. IN MACH OR EQUIP [ ] q. TANK WAGON 26 [ ] r. RAIL CAR [ ] s. TOTE BIN [ ] t. OTHER_____

STORAGE PRESSURE: [✓] a. AMBIENT [ ] b. ABOVE AMBIENT [ ] c. BELOW AMBIENT 27

STORAGE TEMPERATURE: [✓] a. AMBIENT [ ] b. ABOVE AMBIENT [ ] c. BELOW AMBIENT [ ] d. CRYOGENIC 28

	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	1-5 29	SILICA, AMORPHOUS 30	[ ] Yes [ ] No 31	7631-86-9 32
2	1-5 29	ALUMINA HYDRATE 30	[ ] Yes [ ] No 31	21645-51-2 32
3	<1 29	ETHYLBENZENE 30	[ ] Yes [ ] No 31	100-41-4 32
4	29	30	[ ] Yes [ ] No 31	32
5	29	30	[ ] Yes [ ] No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

PLACARDING INFORMATION

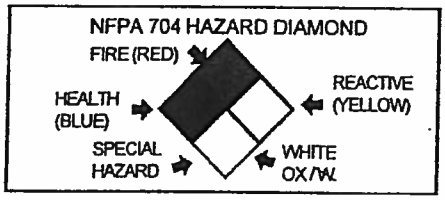
UNDOT # _____ 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS _____ 34
Refer to shipping papers or MSDS

EPCRA [ ] YES [ ] NO 35

X _____
If EPCRA, Please Sign Here 36

NFPA 704 HAZARD DIAMOND



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haz inven (form 3)

DOW CORNING

DOW CORNING CORPORATION
Material Safety Data Sheet

Version: 2.1
Revision Date: 2005/09/23

DOW CORNING(R) 236 DISPERSION

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900
Customer Service: (989) 496-6000
Product Disposal Information: (989) 496-6315
CHEMTREC: (800) 424-9300

MSDS No.: 01997645
Revision Date: 2005/09/23

Generic Description: Silicone in solvent
Physical Form: Liquid
Color: White
Odor: Not available

NFPA Profile: Health 2 Flammability 3 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

2. OSHA HAZARDOUS COMPONENTS

CAS Number	Wt %	Component Name
13463-67-7	30.0 - 60.0	Titanium dioxide
64742-89-8	30.0 - 60.0	Light aliphatic petroleum solvent naphtha
2224-33-1	3.0 - 7.0	Vinyltri (methylethylketoxime) silane
96-29-7	<=3.0	Methylethylketoxime
1330-20-7	1.0 - 5.0	Xylene
7631-86-9	1.0 - 5.0	Silica, amorphous
21645-51-2	1.0 - 5.0	Alumina hydrate
100-41-4	<1.0	Ethylbenzene

The above components are hazardous as defined in 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause severe irritation.

Skin: May cause moderate irritation.

Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers.
Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	Vapors are heavier than air and may travel to a source of ignition and flash back. Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following hazardous decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde. Metal oxides. Nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up:	Remove possible ignition sources. Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbant. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See section 8 for Personal Protective Equipment for Spills. Call (989) 496-5900, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Product evolves methyl ethyl ketoxime (MEKO) when exposed to water or humid air. Provide ventilation during use to control methyl ethyl ketoxime (MEKO) within exposure guidelines or use respiratory protection. Traces of benzene (carcinogen) may form if heated in air above 300 F (149 C). Provide ventilation to control vapor exposure within inhalation guidelines when handling at elevated temperatures. Review the OSHA benzene regulation for detailed information on safe handling requirements. Avoid eye contact. Avoid skin contact. Avoid breathing vapor, mist, dust, or fumes. Keep container closed. Do not take internally.

Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Keep container closed and away from heat, sparks, and flame. Keep container closed and store away from water or moisture.

Inhalation:	Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. IH personnel can assist in judging the adequacy of existing engineering controls.
Suitable Respirator:	General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators.

Personal Protective Equipment for Spills

Eyes:	Use full face respirator.
Skin:	Wash at mealtime and end of shift. If skin contact occurs, change contaminated clothing as soon as possible and thoroughly flush affected areas with cool water. Chemical protective gloves are recommended.
Inhalation/Suitable Respirator:	Respiratory protection recommended. Follow OSHA Respirator Regulations (29 CFR 1910.134) and use NIOSH/MHSA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
Precautionary Measures:	Avoid eye contact. Avoid skin contact. Avoid breathing vapor, mist, dust, or fumes. Keep container closed. Do not take internally. Use reasonable care.
Comments:	Product evolves methyl ethyl ketoxime (MEKO) when exposed to water or humid air. Provide ventilation during use to control methyl ethyl ketoxime (MEKO) within exposure guidelines or use respiratory protection. Traces of benzene (carcinogen) may form if heated in air above 300 F (149 C). Provide ventilation to control vapor exposure within inhalation guidelines when handling at elevated temperatures. Review the OSHA benzene regulation for detailed information on safe handling requirements. When heated to temperatures above 150 degrees C in the presence of air, product can form formaldehyde vapors. Formaldehyde is a potential cancer hazard, a known skin and respiratory sensitizer, and an irritant to the eyes, nose, throat, skin, and digestive system. Safe handling conditions may be maintained by keeping vapor concentrations within the OSHA Permissible Exposure Limit for formaldehyde.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions. For further information regarding aerosol inhalation toxicity, please refer to the guidance document regarding the use of silicone-based materials in aerosol applications that has been developed by the silicone industry (www.SEHSC.com) or contact the Dow Corning customer service group.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Liquid
Color:	White
Odor:	Not available

2224-33-1	3.0 - 7.0	Vinyltri (methylethylketoxime) silane	Possible skin sensitizer.
96-29-7	<=3.0	Methylethylketoxime	Possible skin sensitizer.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? Yes

Characteristic Waste:
Ignitable: D001
TCLP: D018

State or local laws may impose additional regulatory requirements regarding disposal.

Call (989) 496-6315, if additional information is required.

14. TRANSPORT INFORMATION

DOT Road Shipment Information (49 CFR 172.101)

Proper Shipping Name: Flammable liquids, n.o.s.

Hazard Technical Name: Aliphatic Hydrocarbons / Xylene

Section 304 CERCLA Hazardous Substances (40 CFR 302):

CAS Number	Wt %	Component Name
1330-20-7	2.4	Xylene
100-41-4	0.6	Ethylbenzene

Section 311/312 Hazard Class (40 CFR 370):

Acute: Yes
Chronic: Yes
Fire: Yes
Pressure: No
Reactive: No

Section 313 Toxic Chemicals (40 CFR 372):

CAS Number	Wt %	Component Name
1330-20-7	2.4	Xylene
100-41-4	0.6	Ethylbenzene

Supplemental State Compliance Information

California

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

CAS Number	Wt %	Component Name	
100-41-4	<1.0	Ethylbenzene	Carcinogenic.

Massachusetts

CAS Number	Wt %	Component Name
13463-67-7	30.0 - 60.0	Titanium dioxide
1330-20-7	1.0 - 5.0	Xylene
7631-86-9	1.0 - 5.0	Silica, amorphous

New Jersey

HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

GARDEN GROVE FIRE DEPARTMENT EST 1954

☐ ADD ☐ DELETE ☒ REVISED 1 Page 12 of ____ 2

FACILITY ID# 30 0 0 3 5 38 BUSINESS NAME Pacific Wave Syste 3

I. FACILITY INFORMATION

CHEMICAL LOCATION West Wall, + Alcove near Electrical room 4

CONFIDENTIAL LOCATION EPCRA ☐ Yes ☒ No 5 | MAP # 1 6 | GRID # 7

II. CHEMICAL INFORMATION

CHEMICAL NAME Nitrogen | WASTE ☐ Yes 8 | TRADE SECRET ☐ Yes ☒ No 11 * If EPCRA see instructions

COMMON NAME Nitrogen - 3 x 6 Tanks (HP) 9 | An EHS Chemical ☐ Yes ☐ No 12 *If EHS is "Yes", all amounts must be LBS

CAS # 7727-37-9 10 | FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE (Check one item only) ☒ a. PURE ☐ b. MIXTURE ☐ c. WASTE 14 | RADIOACTIVE ☐ Yes ☒ No 15 | CURIES 16

PHYSICAL STATE (Check one item only) ☐ a. SOLID ☐ b. LIQUID ☒ c. GAS 17 4 Foot Cylinders | FED HAZARD CATEGORIES ☐ a. FIRE ☐ b. REACTIVE ☒ c. PRESSURE RELEASE 18 ☐ d. ACUTE HEALTH ☐ e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 18 tank 19 | MAXIMUM DAILY AMOUNT 18 tanks 20 | ANNUAL WASTE AMOUNT N/A 21 | STATE WASTE CODE NA 22

UNITS ☐ a. GALLONS ☐ b. CUBIC FEET 23 ☐ c. POUNDS ☐ d. TONS *If EHS, amount must be in pounds. | DAYS ON SITE 365 Days 24 | LARGEST CONTAINER High pressure 4 Ft Cylinders 25

STORAGE CONTAINER (Check all that apply) 26

☐ a. ABOVEGROUND TANK	☐ e. PLASTIC DRUM	☐ i. VAT	☒ m CYLINDER	☒ q. TANK WAGON
☐ b. UNDERGROUND TANK	☐ f. NONMETALLIC DRUM	☐ l. FIBER DRUM	☐ n. GLASS CONTAINER	☐ r. RAIL CAR
☐ c. TANK INSIDE BLDG	☐ g. METAL CONTAINER	☐ l. BAG(S)	☐ o PLASTIC CONTAINER	☐ s. TOTE BIN
☐ d STEEL DRUM	☐ h. CARBOY	☐ l. BOX(S)	☐ p. IN MACH OR EQUIP	☐ t. OTHER____

STORAGE PRESSURE ☐ a. AMBIENT ☒ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT 27

STORAGE TEMPERATURE ☒ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT ☐ d. CRYOGENIC 28

	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	100 29	N_2 gas 30	☒ Yes ☐ No 31	7727-37-9 32
2	29	30	☐ Yes ☐ No 31	32
3	29	30	☐ Yes ☐ No 31	32
4	29	30	☐ Yes ☐ No 31	32
5	29	30	☐ Yes ☐ No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

PLACARDING INFORMATION

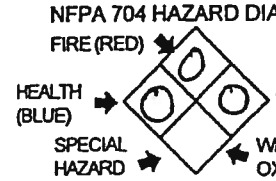
UNDOT # UN 1066 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS 2.2 34
Refer to shipping papers or MSDS

EPCRA ☒ YES ☐ NO 35

X _____ 36
If EPCRA, Please Sign Here

NFPA 704 HAZARD DIAMOND



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AIR PRODUCTS

MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT IDENTIFICATION

PRODUCT NAME: **Nitrogen, compressed**
CHEMICAL NAME: Nitrogen
FORMULA: N_2
SYNONYMS: Nitrogen gas, Gaseous Nitrogen, GAN

MANUFACTURER: **Air Products and Chemicals, Inc.**
7201 Hamilton Boulevard
Allentown, PA 18195 - 1501
PRODUCT INFORMATION: 1-800-752-1597
MSDS NUMBER: 1011 **REVISION:** 5
REVISION DATE: March 1994 **REVIEW DATE:**
August 1997

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Nitrogen is sold as pure product > 99%.
CAS NUMBER: 7727-37-9
EXPOSURE LIMITS:
OSHA: Not established **ACGIH:** Simple asphyxiant **NIOSH:** Not established

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Nitrogen is a nontoxic, odorless, colorless, nonflammable compressed gas stored in cylinders at high pressure. It can cause rapid suffocation when concentrations are sufficient to reduce oxygen levels below 19.5%. Self Contained Breathing Apparatus (SCBA) may be required.

EMERGENCY TELEPHONE NUMBERS
800-523-9374 Continental U.S. , Canada and Puerto Rico
610-481-7711 other locations

POTENTIAL HEALTH EFFECTS INFORMATION:

INHALATION: Simple asphyxiant. Nitrogen is nontoxic, but may cause suffocation by displacing the oxygen in air. Lack of sufficient oxygen can cause serious injury or death.

EYE CONTACT: No adverse effect.

SKIN CONTACT: No adverse effect.

EXPOSURE INFORMATION:

ROUTE OF ENTRY: Inhalation

TARGET ORGANS: None

EFFECT: Asphyxiation (suffocation)

SYMPTOMS: Exposure to an oxygen deficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness and death. Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help themselves.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None

CARCINOGENIC POTENTIAL: Nitrogen is not listed as a carcinogen or potential carcinogen by NTP, IARC, or OSHA .

SECTION 4. FIRST AID

INHALATION: Persons suffering from lack of oxygen should be moved to fresh air. If victim is not breathing, administer artificial respiration. If breathing is difficult, administer oxygen. Obtain prompt medical attention.

EYE CONTACT: Not applicable.

SKIN CONTACT: Not applicable.

SECTION 5. FIRE AND EXPLOSION

FLASH POINT:	AUTOIGNITION:	FLAMMABLE LIMITS:
Not applicable	Nonflammable	Nonflammable

EXTINGUISHING MEDIA: Nitrogen is nonflammable and does not support combustion. Use extinguishing media appropriate for the surrounding fire.

HAZARDOUS COMBUSTION PRODUCTS: None

SPECIAL FIRE FIGHTING INSTRUCTIONS: Nitrogen is a simple asphyxiant. If possible, remove nitrogen cylinders from fire area or cool with water. SCBA may be required by rescue workers.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Upon exposure to intense heat or flame cylinder may vent rapidly and/or rupture violently. Most cylinders are designed to vent contents when exposed to elevated temperatures. Pressure in a container can build up due to heat and it may rupture if pressure relief devices should fail to function.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Evacuate all personnel from affected area. Increase ventilation to release area and monitor oxygen level. Use appropriate protective equipment (SCBA). If leak is from container or its valve, call the Air Products emergency telephone number. If leak is in user's system close cylinder valve and vent pressure before attempting repairs.

SECTION 7. HANDLING AND STORAGE

STORAGE: Cylinders should be stored upright in a well-ventilated, secure area, protected from the weather. Storage area temperatures should not exceed 125 °F (52 °C) and area should be free of combustible materials. Storage should be away from heavily traveled areas and emergency exits. Avoid areas where salt or other corrosive materials are present. Valve protection caps and valve outlet seals should remain on cylinders not connected for use. Separate full from empty cylinders. Avoid excessive inventory and storage time. Use a first-in first-out system. Keep good inventory records.

HANDLING: Do not drag, roll, or slide cylinder. Use a suitable handtruck designed for cylinder movement. Never attempt to lift a cylinder by its cap. Secure cylinders at all times while in use. Use a pressure reducing regulator or separate control valve to safely discharge gas from cylinder. Use a check valve to prevent reverse flow into cylinder. Do not overheat cylinder to increase pressure or discharge rate. If user experiences any difficulty operating cylinder valve, discontinue use and contact supplier. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may

damage valve causing a leak to occur. Use a special cap wrench or adjustable strap-wrench to remove over-tight or rusted caps.

Nitrogen is compatible with all common materials of construction. Pressure requirements should be considered when selecting materials and designing systems.

SPECIAL REQUIREMENTS: Always store and handle compressed gases in accordance with Compressed Gas Association, Inc. (ph. 703-412-0900) pamphlet CGA P-1, *Safe Handling of Compressed Gases in Containers.* Local regulations may require specific equipment for storage or use.

CAUTION: Users of nitrogen must be aware of the hazards caused by the accumulation of high concentrations, especially in confined spaces. Compliance with OSHA regulations, especially 29 CFR 1910.146 (confined space entry), is essential

SECTION 8. PERSONAL PROTECTION / EXPOSURE CONTROL

ENGINEERING CONTROLS: Provide good ventilation and/or local exhaust to prevent accumulation of high concentrations of gas. Oxygen levels in work area should be monitored to ensure they do not fall below 19.5%.

RESPIRATORY PROTECTION:

GENERAL USE: None required.

EMERGENCY: Use SCBA or positive pressure air line with mask and escape pack in areas where oxygen concentration is less than 19.5%. Air purifying respirators will not provide protection.

OTHER PROTECTIVE EQUIPMENT: Safety glasses. Safety shoes and leather work gloves are recommended when handling cylinders.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless gas

ODOR: Odorless

MOLECULAR WEIGHT: 28.01

BOILING POINT (1 Atm): -320.4 °F (-195.8 °C)

SPECIFIC GRAVITY (Air =1): 0.967

SPECIFIC VOLUME (at 70 °F (21.1 °C) and 1 atm): 13.81 ft^3/lb (0.867m^3/kg)

FREEZING POINT/MELTING POINT: -345.8 °F (-209.9 °C)

VAPOR PRESSURE: Not applicable at 70 °F

GAS DENSITY (at 70 °F (21.1 °C) and 1 atm): 0.072 lb/ft^3 (1.153 kg/m^3)

SOLUBILITY IN WATER (Vol./Vol. at 32°F (0°C)): 0.023

SECTION 10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable

CONDITIONS TO AVOID: None

INCOMPATIBILITY: None

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Nitrogen is a simple asphyxiant.

SECTION 12. ECOLOGICAL INFORMATION

The atmosphere contains approximately 78% nitrogen. No adverse ecological effects are expected. Nitrogen does not contain any Class I or Class II ozone depleting chemicals. Nitrogen is not listed as a marine pollutant by DOT (49 CFR 171).

SECTION 13. DISPOSAL

UNUSED PRODUCT / EMPTY CONTAINER: Return cylinder and unused product to supplier. Do not attempt to dispose of residual or unused quantities.

DISPOSAL: For emergency disposal, secure the cylinder and slowly discharge gas to the atmosphere in a well ventilated area or outdoors.

SECTION 14. TRANSPORT INFORMATION

DOT HAZARD CLASS: 2.2

DOT SHIPPING LABEL: Nonflammable Gas

DOT SHIPPING NAME: Nitrogen, Compressed

IDENTIFICATION NUMBER: UN1066

REPORTABLE QUANTITY (RQ): None

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure upright position in a well ventilated truck. Never transport in passenger compartment of a vehicle.

Compressed gas cylinders shall not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with the owner's written consent is a violation of federal law.

SECTION 15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

ENVIRONMENTAL PROTECTION AGENCY (EPA):

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980 requires notification to the National Response Center of a release of quantities of hazardous substances equal to or greater than their reportable quantities (RQ's) in 40 CFR 302.4.

CERCLA Reportable Quantity: None.

SARA TITLE III: Superfund Amendment and Reauthorization Act of 1986

SECTION 302/304: Requires emergency planning on threshold planning quantities (TPQ) and release reporting based on reportable quantities (RQ) of EPA's extremely hazardous substances (40 CFR 355).

Nitrogen is not listed as an extremely hazardous substance.

Threshold Planning Quantity (TPQ): None

SECTIONS 311/312: Require submission of material safety data sheets (MSDSs) and chemical inventory reporting with identification of EPA defined hazard classes. The hazard classes for this product are:

IMMEDIATE HEALTH: No

DELAYED HEALTH: No

PRESSURE: Yes

REACTIVITY: No

FIRE: No

SECTION 313: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372.

Nitrogen does not require reporting under Section 313.

40 CFR Part 68 - Risk Management for Chemical Accident Release Prevention: Requires the development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Nitrogen is not listed as a regulated substance.

TSCA - TOXIC SUBSTANCES CONTROL ACT: Nitrogen is listed on the TSCA inventory.

OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

29 CFR 1910.119 - Process Safety Management of Highly Hazardous Chemicals: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Nitrogen is not listed in Appendix A as a highly hazardous chemical.

STATE REGULATIONS

CALIFORNIA:

Proposition 65: This product does NOT contain any listed substances which the State of California requires warning under this statute.

SCAQMD Rule: VOC = Not applicable

SECTION 16. OTHER INFORMATION

NFPA RATINGS:		HMIS RATINGS:	
HEALTH:	0	HEALTH:	0
FLAMMABILITY:	0	FLAMMABILITY:	0
REACTIVITY:	0	REACTIVITY:	0
SPECIAL:	SA*		

*Compressed Gas Association recommendation to designate simple asphyxiant.

*** Documents with Review Dates August 1997 and Revision Date March 1994 are identical in content and either may be used.*

HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

[✓] ADD [ ] DELETE [ ] REVISED 1 Page 7 of ___ 2

FACILITY ID#	BUSINESS NAME
3 0 0 3 5 38	PACIFIC WAVE SYSTEMS, INC. 3

I. FACILITY INFORMATION

CHEMICAL LOCATION: CHEMICAL LOCKER 4

CONFIDENTIAL LOCATION EPCRA: [ ] Yes [✓] No 5 | MAP # SITE MAP #1 6 | GRID # 4B 7

II. CHEMICAL INFORMATION

CHEMICAL NAME: ALODINE 1500 | WASTE [✓] Yes 8 | TRADE SECRET [ ] Yes [✓] No 11 (If EPCRA see instructions)

COMMON NAME 9: CHEM-FILM | An EHS Chemical [✓] Yes [ ] No 12 (*If EHS is "Yes", all amounts must be LBS)

CAS # 10: 7738-94-5 | FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE (Check one item only): [✓] a. PURE [ ] b. MIXTURE [ ] c. WASTE 14 | RADIOACTIVE [ ] Yes [✓] No 15 | CURIES N/A 16

PHYSICAL STATE (Check one item only): [ ] a. SOLID [✓] b. LIQUID [ ] c. GAS 17 | FED HAZARD CATEGORIES: [ ] a. FIRE [ ] b. REACTIVE [ ] c. PRESSURE RELEASE 18; [✓] d. ACUTE HEALTH [✓] e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 19	MAXIMUM DAILY AMOUNT 20	ANNUAL WASTE AMOUNT 21	STATE WASTE CODE 22
1 GALLON	1 GALLON		

UNITS: [✓] a. GALLONS [ ] b. CUBIC FEET 23 [ ] c. POUNDS [ ] d. TONS (*If EHS, amount must be in pounds.)

DAYS ON SITE 24: 365 | LARGEST CONTAINER 25: 1 GALLON

STORAGE CONTAINER (Check all that apply) 26:

[ ] a. ABOVEGROUND TANK	[ ] e. PLASTIC DRUM	[ ] i. VAT	[ ] m CYLINDER	[ ] q. TANK WAGON
[ ] b. UNDERGROUND TANK	[ ] f. NONMETALLIC DRUM	[ ] l. FIBER DRUM	[ ] n. GLASS CONTAINER	[ ] r. RAIL CAR
[ ] c. TANK INSIDE BLDG	[ ] g. METAL CONTAINER	[ ] l. BAG(S)	[✓] o PLASTIC CONTAINER	[ ] s. TOTE BIN
[ ] d STEEL DRUM	[ ] h. CARBOY	[ ] l. BOX(S)	[ ] p. IN MACH OR EQUIP	[ ] t. OTHER_____

STORAGE PRESSURE: [✓] a. AMBIENT [ ] b. ABOVE AMBIENT [ ] c. BELOW AMBIENT 27

STORAGE TEMPERATURE: [✓] a. AMBIENT [ ] b. ABOVE AMBIENT [ ] c. BELOW AMBIENT [ ] d. CRYOGENIC 28

	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	1-10 29	CHROMIC ACID 30	[✓] Yes [ ] No 31	7738-94-5 32
2	1-10 29	AMMONIUM HEXAFLUOROZIRCONATE 30	[✓] Yes [ ] No 31	16919-31-6 32
3	29	30	[ ] Yes [ ] No 31	32
4	29	30	[ ] Yes [ ] No 31	32
5	29	30	[ ] Yes [ ] No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

PLACARDING INFORMATION

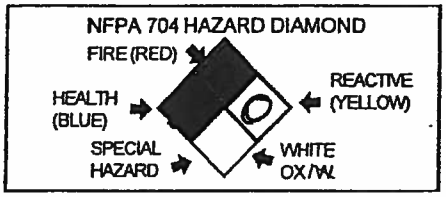
UNDOT # _____ 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS _____ 34
Refer to shipping papers or MSDS

EPCRA [ ] YES [✓] NO 35

X _____
If EPCRA, Please Sign Here 36

NFPA 704 HAZARD DIAMOND



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haz inven (form 3)

Material Safety Data Sheet

Material Name: ALODINE® 1500 ID: 234087

*** Section 1 - Chemical Product and Company Identification ***

Product Trade Name ALODINE® 1500

Manufacturer Information

Henkel Surface Technologies
Henkel Corporation
32100 Stephenson Highway
Madison Heights, MI 48071

Contact Phone: (248) 583-9300

Chemtrec Emergency # (800) 424-9300

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Component	Percent
7738-94-5	Chromic acid	1-10
16919-31-6	Ammonium hexafluorozirconate	1-10

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Fluorides (16984-48-8), Zirconium compounds, n.o.s., Ammonia (7664-41-7), Chromium (VI) compounds- water soluble, Chromium compounds, Hexavalent chromium, Chromium (VI) compounds, Chromium, inorganic compounds.

*** Section 3 - Hazards Identification ***

Emergency Overview:

DANGER -- CORROSIVE! Contact with this material will cause burns to the skin, eyes and mucous membranes. May cause blindness. Contact with broken skin may result in ulcers. Prolonged or repeated breathing may cause ulceration of nasal membranes. Possible cancer hazard.

Eye Contact:

This product is severely irritating to the eyes and may cause irreversible damage including burns and blindness.

Skin Contact:

Contact with broken skin may lead to formation of firmly marginated "chrome sores". Product contains chromium, which may cause an allergic skin sensitization reaction. Massive overexposures may lead to kidney failure and death. Following skin exposure to this product, the sensation of irritation or pain may be delayed.

Skin Absorption:

A component in this product may be harmful or fatal if absorbed through the skin, especially if skin is damaged.

Ingestion:

This product may produce corrosive damage to the gastrointestinal tract if it is swallowed.

Inhalation:

Inhalation of mists of this product may cause severe irritation and burns to the respiratory tract.

Medical Conditions Aggravated by Exposure:

Pre-existing eye, skin and respiratory disorders.

*** Section 4 - First Aid Measures ***

Eye Contact:

In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Skin Contact:

Immediately take off all contaminated clothing. For skin contact, flush with large amounts of water. Seek immediate medical attention. If irritation persists, repeat flushing and get medical attention. Discard any shoes or clothing items that cannot be decontaminated.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines:

A: General Product Information

Follow all applicable exposure limits.

B: Component Exposure Limits

Ammonium hexafluorozirconate (16919-31-6)

ACGIH: 2.5 mg/m3 TWA (as F) (related to Fluorides)
5 mg/m3 TWA (as Zr) (related to Zirconium compounds, n.o.s.)
25 ppm TWA (related to Ammonia)
10 mg/m3 STEL (as Zr) (related to Zirconium compounds)
35 ppm STEL (related to Ammonia)

OSHA: as F: 2.5 mg/m3 TWA (related to Fluorides)
as Zr: 5 mg/m3 TWA (related to Zirconium compounds, n.o.s.)
as Zr: 10 mg/m3 STEL (related to Zirconium compounds, n.o.s.)
35 ppm STEL; 27 mg/m3 STEL (related to Ammonia)

NIOSH: as F: 2.5 mg/m3 TWA (related to Fluorides)
25 ppm TWA; 18 mg/m3 TWA (related to Ammonia)
35 ppm STEL; 27 mg/m3 STEL (related to Ammonia)

Chromic acid (7738-94-5)

ACGIH: 0.05 mg/m3 TWA (related to Chromium (VI) compounds - water soluble)
0.5 mg/m3 TWA (related to Chromium, inorganic compounds)

OSHA: Chromic acid and chromates: C 0.1 mg/m3

NIOSH: as CrO3: 0.001 mg/m3 TWA; NIOSH Potential Occupational Carcinogen - see Appendix A; see Appendix C for supplementary exposure limits

Engineering Controls:

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face Protective Equipment:

Wear chemical goggles; face shield (if splashing is possible).

Skin Protection:

Use impervious gloves. Butyl, Neoprene, PVC or Nitrile gloves recommended. Use of impervious apron and boots are recommended.

Respiratory Protection:

If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

Personal Protective Equipment:

Eye wash fountain and emergency showers are recommended.

Chronic Toxicity

Chromium III, the naturally occurring form, has low toxicity while chromium VI is highly toxic due to strong oxidation characteristics and permeability through biological membranes. Excessive exposure to chromic acid (chromium VI) can produce allergic skin sensitization reactions and severe nasal irritation and ulceration, scarring and damage to the lungs, liver and kidney damage. Contains fluorides. Exposure to fluorides over years may cause fluorosis.

Epidemiology:

No information available for the product.

Neurotoxicity:

No information available for the product.

Mutagenicity:

No information available for the product.

Teratogenicity:

No information available for the product.

Other Toxicological Information:

None available.

* * * Section 12 - Ecological Information * * *

Ecotoxicity:

A: General Product Information

No data available for this product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Ammonium hexafluorozirconate (16919-31-6)

Test & Species		Conditions
EC50 (5 min) Photobacterium phosphoreum	2.0 mg/L Microtox test.	15 °C. (related to Ammonia)

Environmental Fate:

No data is available concerning the environmental fate, biodegradation or bioconcentration for this product.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Numbers & Descriptions:

A: General Product Information

This product, if discarded directly, would be a characteristic RCRA corrosive waste (D002). This product contains chromium which is a hazardous waste (D007).

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions:

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

* * * Section 14 - Transportation Information * * *

US DOT Information

Shipping Name: Please refer to the container label for transportation information.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

*** Section 16 - Other Information ***

NFPA Ratings: Health: 3 **Fire:** 0 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
HMIS Ratings: Health: 3* **Fire:** 0 **Reactivity:** 0 **Pers. Prot.:**
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

The information presented herein is believed to be factual as it has been derived from the works and opinions of persons believed to be qualified experts; however. nothing contained in this information is to be taken as a warranty or representation for which Henkel Surface Technologies bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.

Contact: Sulinda Leffingwell
Contact Phone: (248) 583-9300

This is the end of MSDS # 234087

HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

☐ ADD ☐ DELETE ☑ REVISED 1 Page 4 of ___ 2

FACILITY ID# 3 0 - 0 3 5 38 | BUSINESS NAME 3: PACIFIC WAVE SYSTEMS, INC.

I. FACILITY INFORMATION

CHEMICAL LOCATION 4: SHOP FLOOR, NEAR WEST SIDE ROLL UP DOOR

CONFIDENTIAL LOCATION EPCRA ☐ Yes ☑ No 5 | MAP # SITE MAP #1 6 | GRID # 5B 7

II. CHEMICAL INFORMATION

CHEMICAL NAME: PROPANE TANK UN1075 | WASTE ☐ Yes 8 | TRADE SECRET ☐ Yes ☑ No 11 (If EPCRA see instructions)

COMMON NAME 9: PROPANE TANK | An EHS Chemical ☐ Yes ☑ No 12 (*If EHS is "Yes", all amounts must be LBS)

CAS # 10: 74-98-6 | FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE (Check one item only): ☑ a. PURE ☐ b. MIXTURE ☐ c. WASTE 14 | RADIOACTIVE ☐ Yes ☑ No 15 | CURIES N/A 16

PHYSICAL STATE (Check one item only): ☐ a. SOLID ☑ b. LIQUID ☐ c. GAS 17 | FED HAZARD CATEGORIES: ☑ a. FIRE ☐ b. REACTIVE ☑ c. PRESSURE RELEASE 18; ☐ d. ACUTE HEALTH ☐ e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 19: 2 TANKS | MAXIMUM DAILY AMOUNT 20: 2 TANKS | ANNUAL WASTE AMOUNT 21: N/A | STATE WASTE CODE 22: N/A

UNITS: ☐ a. GALLONS ☐ b. CUBIC FEET 23 ☑ c. POUNDS ☐ d. TONS (*If EHS, amount must be in pounds.) | DAYS ON SITE 24: 365 | LARGEST CONTAINER 25: 5941 TYPE 3U-33#

STORAGE CONTAINER (Check all that apply) 26:

☐ a. ABOVEGROUND TANK	☐ e. PLASTIC DRUM	☐ i. VAT	☑ m CYLINDER	☐ q. TANK WAGON
☐ b. UNDERGROUND TANK	☐ f. NONMETALLIC DRUM	☐ I. FIBER DRUM	☐ n. GLASS CONTAINER	☐ r. RAIL CAR
☑ c. TANK INSIDE BLDG	☐ g. METAL CONTAINER	☐ I. BAG(S)	☐ o PLASTIC CONTAINER	☐ s. TOTE BIN
☐ d STEEL DRUM	☐ h. CARBOY	☐ I. BOX(S)	☐ p. IN MACH OR EQUIP	☐ t. OTHER_____

STORAGE PRESSURE: ☐ a. AMBIENT ☑ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT 27

STORAGE TEMPERATURE: ☑ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT ☐ d. CRYOGENIC 28

	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	100 29	PROPANE C3H8 30	☐ Yes ☑ No 31	74-98-6 32
2	29	30	☐ Yes ☐ No 31	32
3	29	30	☐ Yes ☐ No 31	32
4	29	30	☐ Yes ☐ No 31	32
5	29	30	☐ Yes ☐ No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

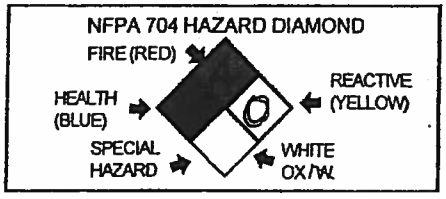
PLACARDING INFORMATION

UNDOT # UN 1978 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS 2.1 (FLAMMABLE GAS 34
Refer to shipping papers or MSDS

EPCRA ☐ YES ☑ NO 35

X _____ 36
If EPCRA, Please Sign Here



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MATERIAL SAFETY DATA SHEET

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHS Inc.
P.O. Box 64089
Mail station 525
St. Paul, MN 55164-0089

Transportation Emergency (CHEMTREC): 1-800-424-9300
Technical Information: 1-651-355-8443
MSDS Information: 1-651-355-8438

PRODUCT NAME: Propane

MSDS: 0148-M7A0 – Rev. E (12/24/03)

COMMON NAME: Propane, Liquefied Petroleum Gas; LP Gas; Dimethyl methane

CHEMICAL FORMULA: C_3H_8

CHEMICAL NAME: Dimethylmethane

CHEMICAL FAMILY: Paraffin Hydrocarbons

Section 2 - COMPOSITION AND INFORMATION ON INGREDIENTS

INGREDIENTS	PERCENTAGES (by weight)	PEL (OSHA)	TLV (ACGIH)	CAS #
Propane	95 - 100%	1000 ppm TWA	2500 ppm TWA Simple Asphyxiant	74-98-6
Propylene	0 - 5%	N/D	Simple Asphyxiant	115-07-1

NOTE: Ethyl Mercaptan added as an odorant.
(TWA) - Time Weighted Average is the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.
(STEL) - Short Term Exposure Limit is the employee's 15-minute time weighted average exposure which shall not be exceeded at any time during a work day unless another time limit is specified.

Section 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER! Extremely flammable. Compressed gas. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. Liquid can cause burns similar to frostbite. Caution: Ethyl mercaptan used as a warning agent may not be entirely effective in all situations because of a condition commonly referred to as odor fade (see section 10 for more information). If you suspect a leak, use a combustible gas indicator or similar device to check for gas leaks.

OSHA HAZARD CLASS

Based on OSHA definitions, the following ingredients in this product are hazardous. The OSHA physical and health hazard categories are shown below. **Note: CHS has not conducted specific toxicity tests on this product. Our hazard evaluation is based on information from similar ingredients, technical literature, and/or professional experience.**

Propane - Flammable Gas, Compressed Gas, Asphyxiant

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation, Dermal.

ACUTE EFFECTS OF OVER EXPOSURE:

Eyes - Liquid can cause burns similar to frostbite.

Skin - Liquid can cause burns similar to frostbite.

Inhalation - At very high concentrations can displace the normal air and cause suffocation from lack of oxygen. Symptoms of lack of oxygen include increase depth and frequency of breathing, dizziness, headache, nausea or loss of consciousness.

Ingestion - Liquid can cause burns similar to frostbite.

CHRONIC EFFECTS OF OVER EXPOSURE: None Determined

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Personnel with pre-existing chronic respiratory diseases should avoid exposure to this material

CARCINOGENICITY: NTP: No **IARC:** No **OSHA:** No **EMERGENCY AND FIRST AID PROCEDURES:**

Section 4 - FIRST AID MEASURES

Eye Contact - If liquid propane contacts the eye, flush thoroughly with water for at least 15 minutes, occasionally lifting the upper and lower lids, until no evidence of chemical remains. Get medical attention as soon as possible.

Skin Contact - Frozen tissue should be flushed with plenty of tepid water. Do not use hot water. Cryogenic (low temperature) burns which result in blistering or deeper tissue freezing should be promptly treated by a physician.

Inhalation - Move person to fresh air. If large amounts have been inhaled, keep victim warm and get medical attention. Apply artificial respiration if not breathing.

Ingestion -

Section 5 - FIRE - FIGHTING MEASURES

FLASH POINT: -156°F **AUTO IGNITION TEMP:** 874°F

FLAMMABLE LIMITS IN AIR	**LOWER**	**UPPER**
% BY VOLUME	2.1	9.5

EXTINGUISHING MEDIA: Do not extinguish gas fire unless the gas leak can be stopped. For small fire use dry chemical or Carbon Dioxide (CO_2). For large fires, use water spray or fog and move containers from fire area if you can do so without risk.

SPECIAL FIRE FIGHTING PROCEDURES: Shut off gas source and allow the fire to burn itself out. Gas fires should not be extinguished unless the gas flow can be stopped immediately. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind, out of low areas, and ventilate closed spaces before entering. Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.

FIRE INVOLVING TANK, RAIL CAR, OR TANK TRUCK: Isolate for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions Call CHEMTREC at 1-800-424-9300 as soon as possible, especially if there is no local hazardous materials team available. If gas source cannot be shut off immediately, fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool container with flooding quantities of water until well after fire is out to prevent container from exploding. ALWAYS stay away from tanks engulfed in fire. WITHDRAW IMMEDIATELY in case of rising sound from venting safety devices or discoloration of tank. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapors are heavier than air and may travel along the ground and collect in low or confined areas and be exposed to a source of ignition (pilot light, heater, electric motor) some distance away. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tank due to fire.

HAZARD RATINGS:	**NFPA 704:**	Health- 1	Fire- 4	Reactivity- 0
	HMIS:	Health- 1	Fire- 4	Reactivity- 0

Section 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO TAKE IF MATERIAL IS RELEASED OR SPILLED: ELIMINATE ALL SOURCES OF IGNITION AND STOP LEAK IF YOU CAN DO SO WITHOUT RISK. Notify emergency response personnel as appropriate. Keep unnecessary people away; isolate hazard area and deny entry. Vapors can be dispersed with sustained water spray. Prevent spreading of vapors through sewers, ventilation systems and confined areas. NOTE: Review Section 5 -FIRE-FIGHTING MEASURES before proceeding with clean up. Use appropriate personal protective equipment during emergency response.

Section 7 - HANDLING AND STORAGE

HANDLING AND STORING: Consult the U.S. Department of Transportation regulations on the shipping of petroleum gases. If upon initial receipt inspection a cylinder is found to be in poor condition, contact the supplier. The most common hazard is leakage due to faulty pressure control regulators. Large pressure build-up can result in explosive decompression at the cylinder head, causing the cylinder to rocket like a missile. Prevent entrapment of liquid in closed system. Use check valve to prevent back-flow into storage container. Chain cylinders when not in use. Cylinder storage should be segregated from oxidizers such as oxygen, chlorine, etc. and away from heavy traffic areas to prevent knocking over or damage from falling objects. Valve caps should remain on cylinders.

Section 8 - EXPOSURE CONTROL - PERSONAL PROTECTION

ENGINEERING CONTROLS: Local exhaust and general ventilation may both be necessary in work area to prevent accumulation of explosive mixtures. Provide special ventilation in sumps and confined spaces. If mechanical ventilation is used, electrical equipment must meet National Electrical Code requirements.

RESPIRATORY EQUIPMENT: Personnel should never enter an area of high concentration without proper respiratory protection. Provide NIOSH-approved air-supplied respirator or self-contained breathing apparatus for emergency or non-routine situations where the level is excessive.

EYE PROTECTION: Use face shield or chemical type goggles where contact with material may occur such as when changing valves, hoses, etc.

PROTECTIVE CLOTHING: Use protective clothing, face shield, and gloves when contact with liquid propane is possible.

OTHER (SAFETY SHOWERS, EYE WASH STATIONS, ETC.): Emergency eye wash fountains and safety showers for first aid treatment of potential freeze burns should be available in the vicinity of any significant exposure from compressed gas release.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless gas (liquid under pressure)

ODOR: If odorized, will have rotten egg odor, otherwise odorless.

BOILING POINT: 760 mmHg @ -44°F

SPECIFIC GRAVITY (water=1): 0.5

VAPOR PRESSURE: 190 psia @ 100°F

VAPOR DENSITY (air=1): 1.5

SOLUBLE IN WATER: Very slightly soluble

EVAPORATION RATE (ether=1): N/A

pH:

Section 10 - STABILITY AND REACTIVITY

STABILITY -

STABLE X (At normal temperature and storage conditions)
UNSTABLE

INCOMPATIBILITY -

CONDITIONS TO AVOID: Propane vapors will form explosive mixtures with air and will easily ignite by heat, sparks, flames, build-up of static electricity, and other sources of ignition. Note: Ethyl mercaptan might, under certain conditions (when oxygen, water, iron oxide or other oxidizers are present in containers and piping) react with oxidizers which diminish or eliminate entirely its distinct smell, therebv reducing or eliminating the ability of a person to detect a leak. The passage of odorized propane through soil because of an underground leak will also diminish or eliminate entirely the smell of odorized propane. If you suspect a leak, use a combustible gas indicator or similar device to check for gas leaks.

MATERIALS TO AVOID: Strong acids, alkalies and oxidizers such as chlorine (gas or liquid) and oxygen.

HAZARDOUS DECOMPOSITION PRODUCTS: Normal combustion produces carbon dioxide; incomplete combustion can produce carbon monoxide.

HAZARDOUS POLYMERIZATION: Has not been reported to occur.

Section 11 - TOXICOLOGY INFORMATION

Note: CHS has not conducted specific toxicity tests on this product.

Section 12 - ECOLOGICAL INFORMATION

Note: CHS has not conducted specific ecological tests on this product.

Section 13 - DISPOSAL CONSIDERATION

WASTE DISPOSAL PROCEDURES: Releases are expected to cause only localized non-persistent environmental damage. Waste mixtures containing these gases should not be allowed to enter drains or sewers where there is danger of vapors being ignited. When it becomes necessary to dispose of these gases, it is preferable to do so as a vapor. These gases may be used as an auxiliary fuel or disposed of by flaring in a properly designed flare or incinerator. Venting of the gases to the atmosphere should be avoided. Treatment, storage, transportation and disposal must be in accordance with applicable federal, state and local regulations.

Section 14 - TRANSPORTATION

DOT PROPER SHIPPING NAME: Propane

DOT HAZARD CLASS: 2.1

DOT IDENTIFICATION NUMBER: UN 1978

DOT EMER. RESPONSE GUIDE NO.: 115
(Formerly #22)

DOT LABEL, PLACARD: Flammable Gas

Section 15 - REGULATORY INFORMATION

This product may contain the following toxic chemicals subject to the reporting requirements of SARA Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

Cas Number	Chemical Name	Percent By Weight
115-07-1	Propylene	0 - 5%

SARA SECTION 311-312 HAZARD CATEGORIES (40 CFR 370.2):

FIRE: Yes **SUDDEN RELEASE OF PRESSURE:** Yes **REACTIVE:** No **ACUTE:** Yes **CHRONIC:** No

Section 16 - OTHER INFORMATION

Updated By: Gary Bourne / Hue Lam DATE: December 24, 2003
Title: EHS Compliance Specialists Supersedes: 09/08/03
Reason for issue: company name change

THE INFORMATION CONTAINED IN THIS MSDS RELATES ONLY TO THE SPECIFIC MATERIAL IDENTIFIED. IT DOES NOT COVER USE OF THAT MATERIAL IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY PARTICULAR PROCESS. IN COMPLIANCE WITH 29 C.F.R. 1910.1200(g), CHS HAS PREPARED THIS MSDS IN SEGMENTS, WITH THE INTENT THAT THOSE SEGMENTS BE READ TOGETHER AS A WHOLE WITHOUT TEXTUAL OMISSIONS OR ALTERATIONS. CHS BELIEVES THE INFORMATION CONTAINED HEREIN TO BE ACCURATE, BUT MAKES NO REPRESENTATION, GUARANTEE, OR WARRANTY, EXPRESS OR IMPLIED, ABOUT THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THE INFORMATION OR ABOUT THE FITNESS OF CONTENTS HEREIN FOR EITHER GENERAL OR PARTICULAR PURPOSES. PERSONS REVIEWING THIS MSDS SHOULD MAKE THEIR OWN DETERMINATION AS TO THE MATERIAL'S SUITABILITY AND COMPLETENESS FOR USE IN THEIR PARTICULAR APPLICATIONS.

CENEX® OUR ENERGY COMES THROUGH.™

HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

☐ ADD ☐ DELETE ☑ REVISED 1

Page 6 of ___ 2

FACILITY ID# 3 0 0 3 5 38 | BUSINESS NAME 3: PACIFIC WAVE SYSTEMS, INC.

I. FACILITY INFORMATION

CHEMICAL LOCATION 4: CHEMICAL LOCKER

CONFIDENTIAL LOCATION EPCRA ☐ Yes ☑ No 5 | MAP # 6: SITE MAP #1 | GRID # 7: 4B

II. CHEMICAL INFORMATION

CHEMICAL NAME: ACETYLENE - C2H2 | WASTE ☐ Yes 8 | TRADE SECRET ☐ Yes ☑ No 11 (If EPCRA see instructions)

COMMON NAME 9: ACETYLENE - DISSOLVED | An EHS Chemical ☐ Yes ☑ No 12 (*If EHS is "Yes", all amounts must be LBS)

CAS # 10: 74-86-2 | FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE (Check one item only): ☑ a. PURE ☐ b. MIXTURE ☐ c. WASTE 14 | RADIOACTIVE ☐ Yes ☑ No 15 | CURIES 16: N/A

PHYSICAL STATE (Check one item only): ☐ a. SOLID ☐ b. LIQUID ☑ c. GAS 17 | FED HAZARD CATEGORIES 18: ☑ a. FIRE ☑ b. REACTIVE ☐ c. PRESSURE RELEASE ☑ d. ACUTE HEALTH ☐ e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 19	MAXIMUM DAILY AMOUNT 20	ANNUAL WASTE AMOUNT 21	STATE WASTE CODE 22
1 TANK	1 TANK	N/A	N/A

UNITS: ☐ a. GALLONS ☑ b. CUBIC FEET 23 ☐ c. POUNDS ☐ d. TONS (*If EHS, amount must be in pounds.)

DAYS ON SITE 24: 365

LARGEST CONTAINER 25: 330 CUBIT FEET

STORAGE CONTAINER (Check all that apply) 26:

☐ a. ABOVEGROUND TANK	☐ e. PLASTIC DRUM	☐ i. VAT	☐ m CYLINDER	☐ q. TANK WAGON
☐ b. UNDERGROUND TANK	☐ f. NONMETALLIC DRUM	☐ i. FIBER DRUM	☐ n. GLASS CONTAINER	☐ r. RAIL CAR
☐ c. TANK INSIDE BLDG	☑ g. METAL CONTAINER	☐ i. BAG(S)	☐ o PLASTIC CONTAINER	☐ s. TOTE BIN
☐ d STEEL DRUM	☐ h. CARBOY	☐ i. BOX(S)	☐ p. IN MACH OR EQUIP	☐ t. OTHER_____

STORAGE PRESSURE 27: ☑ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT

STORAGE TEMPERATURE 28: ☑ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT ☐ d. CRYOGENIC

	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	>99 29	ACETYLENE 30	☐ Yes ☑ No 31	74-86-2 32
2	29	30	☐ Yes ☐ No 31	32
3	29	30	☐ Yes ☐ No 31	32
4	29	30	☐ Yes ☐ No 31	32
5	29	30	☐ Yes ☐ No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

PLACARDING INFORMATION

UNDOT # UN1001 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS 2.1 (FLAMMABLE GAS) 34
Refer to shipping papers or MSDS

EPCRA ☐ YES ☑ NO 35

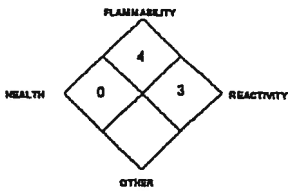
X _____ 36
If EPCRA, Please Sign Here

NFPA 704 HAZARD DIAMOND

MAKE AS MANY COPIES OF CHEMICAL INVENTORY FORM AS NEEDED

GAS DISSOLVED IN ACETONE

NFPA RATING



MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

CHEMICAL NAME; CLASS:	**ACETYLENE - C_2H_2**
	Document Number: 001001
PRODUCT USE:	For welding, cutting, and general analytical/synthetic chemical uses.
SUPPLIER/MANUFACTURER'S NAME:	AIRGAS INC.
ADDRESS:	259 N. Radnor-Chester Road Suite 100 Radnor, PA 19087-5283
BUSINESS PHONE:	1-610-687-5253
EMERGENCY PHONE:	1-800-949-7937 International: 423-479-0293 (Call Collect)
DATE OF PREPARATION:	May 20, 1996
REVISION DATE:	September 10, 2003

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH-TLV		OSHA-PEL		NIOSH	OTHER
			TWA ppm	STEL ppm	TWA ppm	STEL ppm	IDLH ppm	ppm
Acetylene	74-86-2	> 99	Acetylene is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					NIOSH REL: STEL = 2500 (ceiling) Matheson maximum recommended limit for exposure: 5000 ppm
Maximum Impurities		< 1	None of the trace impurities in this mixture contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalent standards.					

NE = Not Established. See Section 16 for Definitions of Terms Used.

NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This gas has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: Acetylene is a colorless, flammable gas, with a garlic-like odor, that is dissolved in acetone. The main health hazard associated with a release of this gas is asphyxiation by displacement of oxygen. Acetylene gas poses an extreme fire hazard when accidentally released. The gas is lighter than air, and may spread long distances. Distant ignition and flashback are possible. Flame or high temperature impinging on a localized area of the cylinder of this product can cause the cylinder to explode without activating the cylinder's relief devices. Acetylene gas may decompose explosively at elevated temperatures and pressures. Acetylene can form very explosive metallic salts (such as with copper, mercury, and silver). Provide adequate fire protection during emergency response situations.

3. HAZARD IDENTIFICATION (Continued)

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant route of overexposure for this gas is by inhalation. The following paragraphs describe symptoms of exposure by route of exposure.

INHALATION: At concentration below the LEL of 2.5% (25,000 ppm) this gas is essentially non-toxic. At higher concentrations, Acetylene has anesthetic effects. Symptoms of overexposure to such high concentrations may include drowsiness, dizziness, and a general feeling of weakness. Intentional inhalation of Acetylene has resulted in depressed consciousness, metabolic acidosis, hyperglycemia, ketonuria, and elevated creatinine levels.

High concentrations of this gas can cause an oxygen-deficient environment. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. The skin of a victim of overexposure may have a blue color. Under some circumstances of overexposure, death may occur. The following effects associated with various levels of oxygen are as follows:

CONCENTRATION	SYMPTOMS OF EXPOSURE
12-16% Oxygen:	Breathing and pulse rate increased, muscular coordination slightly disturbed.
10-14% Oxygen:	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen:	Nausea and vomiting, collapse or loss of consciousness.
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

When administered with oxygen at concentrations of 10% or greater, Acetylene produces varying degrees of temporary narcosis.

OTHER POTENTIAL HEALTH EFFECTS: The gas is generally non-irritating to the skin and eyes. Acetylene is dissolved in acetone. Any skin or eye contact with the acetone component of this product may be slightly irritating to contaminated skin or eyes.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in **Lay Terms**. Overexposure to Acetylene may cause the following health effects:

ACUTE: The most significant hazard associated with Acetylene is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, and nausea. At high concentrations, unconsciousness or death may occur.

CHRONIC: Chronic exposure to oxygen-deficient atmospheres (below 18% oxygen in air) may affect the heart and nervous system. Refer to Section 11 (Toxicology Information) for more detailed information.

TARGET ORGANS: ACUTE: Respiratory system, central nervous system. CHRONIC: Skin, heart, central nervous system.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD	(BLUE)	1
FLAMMABILITY HAZARD	(RED)	4
PHYSICAL HAZARD	(YELLOW)	3

PROTECTIVE EQUIPMENT

EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8

For Routine Industrial Use and Handling Applications

See Section 16 for Definition of Ratings

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant equipment should be worn. Adequate fire protection must be provided during rescue situations. NOTE: Acetylene releases which have not spontaneously ignited must be considered extremely dangerous, and should not be approached!

Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen *and/or* cardio-pulmonary resuscitation, if necessary. Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

SKIN EXPOSURE: If the Acetone carrier contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek medical attention if irritation persists, or if there are other adverse health effects.

4. FIRST-AID MEASURES (Continued)

EYE EXPOSURE: If this gas contaminates the eyes, immediately begin decontamination with running water, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek medical attention.

THERMAL BURNS: In the event personnel are burned as a result of an Acetylene release, trained personnel should provide first aid treatment. Get medical attention immediately.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Acute or chronic respiratory conditions may be aggravated by overexposure to Acetylene, due to the presence of the acetone carrier.

RECOMMENDATIONS TO PHYSICIANS: Administer oxygen, if necessary. Treat symptoms and eliminate exposure.

5. FIRE-FIGHTING MEASURES

FLASH POINT (Closed Cup): 0°C (32°F)

AUTOIGNITION TEMPERATURE: 305°C (581°F)

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): 2.5%

Upper (UEL): 82%

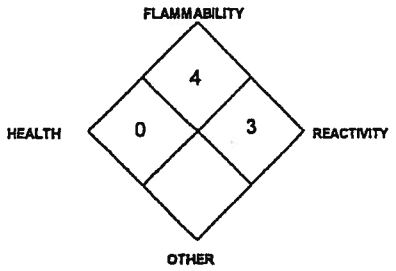
100% with substantial energy source and under certain conditions of pressure, container size and shape.

FIRE EXTINGUISHING MATERIALS: Extinguish fires of this gas by shutting-off the source of the gas. Use water spray to cool fire-exposed structures and equipment.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, this material ignites to produce toxic gases including carbon monoxide and carbon dioxide. Acetylene gas is extremely flammable and can readily form explosive mixtures with air over a very wide range. An explosion hazard exists in confined spaces when the gas is released. Pure Acetylene can explode under certain conditions of elevated pressure, temperature and container size. Acetylene reacts with active metals to form explosive acetylide compounds.

GAS DISSOLVED IN ACETONE

NFPA RATING



See Section 16 for Definition of Ratings

DANGER! Fires impinging (direct flame) on the outside surface of cylinders or storage vessels can be very dangerous. Direct flame exposure on the cylinder wall can cause an explosion by exothermic decomposition. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the vessel. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Static discharge may cause this gas to ignite explosively.

SPECIAL FIRE-FIGHTING PROCEDURES: The best fire-fighting technique may be simply to let the burning gas escape from the pressurized cylinder, tank car, or pipeline. Stop the leak before extinguishing fire. If the fire is extinguished before the leak is sealed, the still-leaking gas could explosively re-ignite without warning and cause extensive damage, injury, or fatality. In this case, increase ventilation (in enclosed areas) to prevent flammable or explosive mixture formation. Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for explosive rupture of cylinders of Acetylene, evacuation of non-emergency personnel is essential. Because of possible internal decomposition of Acetylene if cylinders are exposed to heat during a fire, exposed cylinders must be cooled with a water spray for an extended period to prevent possible cylinder rupture. If water is not available for cooling or protection of vessel exposures, evacuate the area. Refer to the North American Emergency Response Guidebook (Guide #116).

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a release, clear the affected area and protect people. Adequate fire protection must be provided. Minimum Personal Protective Equipment should be **Level B; fire-retardant protective clothing, mechanically-resistant gloves and Self-Contained Breathing Apparatus.** Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate. Monitor the surrounding area for oxygen and combustible gas levels. Combustible gas concentration must be below 10% of the LEL (LEL = 2.5%) prior to entry of any response personnel. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

THIS IS AN EXTREMELY FLAMMABLE GAS. Protection of all personnel and the area must be maintained.

PART III *How can I prevent hazardous situation from occurring?*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting Acetylene IN YOU. Do not eat or drink while handling chemicals. Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of Acetylene could occur without any significant warning symptoms.

STORAGE AND HANDLING PRACTICES: Cylinders should be stored in dry, well-ventilated areas away from sources of heat. Compressed gases can present significant safety hazards. Store containers away from heavily trafficked areas and emergency exits. Post "No Smoking or Open Flames" signs in storage or use areas. Avoid storage for over six months and keep the smallest amount necessary on-site at any one-time. In the United States, from NFPA 51, cylinders of Acetylene stored inside buildings at the locations of use, must be limited to a total capacity of 2500 ft^3 ($70m^3$). In Canada, the limit is for a total capacity of 2160 ft^3 (60 m^3) in non-sprinklered buildings and 6130 ft^3 (170 m^3) in building with sprinkler systems. After these quantities are exceeded, a special room must be built for the storage of Acetylene. Consider installation of leak detection and alarm for storage area. Cylinders should be stored upright and be firmly secured to prevent falling or being knocked over. This will prevent acetone from being released from the cylinder. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Keep the quantity stored as small as possible. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Keep storage area clear of materials which can burn. Have appropriate extinguishing equipment in the storage area (e.g., sprinkler system, portable fire extinguishers).

It is important to note that Acetylene, in its free state, under pressure, may decompose violently. The higher the pressure, the smaller the initial force necessary to cause a reaction. Therefore, **never use the free gas outside the cylinder at pressures in excess of 15 psig.** If pressures exceeding this limit are utilized, special explosion and fire safety precautions must be implemented.

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: Protect cylinders against physical damage. Store in cool, dry, well-ventilated area, away from sources of heat, ignition and direct sunlight. Do not allow area where cylinders are stored to exceed 52°C (125°F). Isolate from halogens and oxidizers such as oxygen, chlorine, or fluorine. Use a check valve or trap in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders. Electrical equipment should be non-sparking or explosion proof. The following rules are applicable to work situations in which cylinders are being used:

Before Use: Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

During Use: Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Use check valve or trap in discharge line to prevent hazardous backflow into the cylinder. Do not use oils or grease on gas-handling fittings or equipment.

After Use: Close main cylinder valve. Valves should be closed tightly, to prevent evaporation of acetone. Replace valve protection cap. Mark empty cylinders "EMPTY".

NOTE: Use only DOT or ASME code containers designed for acetylene storage. Earth-ground and bond all lines and equipment associated with this product. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner. For additional information refer to the Compressed Gas Association Pamphlet P-1, *Safe Handling of Compressed Gases in Containers*. Additionally, refer to CGA Bulletin SB-2 "*Oxygen Deficient Atmospheres*" and NFPA Bulletin 58.

For welding and brazing operations, refer to ANSI Z-49.1 "*Safety in Welding and Cutting*" and OSHA safety regulations for welding, cutting, and brazing (29 CFR 1910.252).

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (e.g., nitrogen) before attempting repairs.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure oxygen levels are above 19.5% in the work area. Local exhaust ventilation is preferred, because it prevents Acetylene dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of oxygen and the presence of potentially explosive air-gas mixtures.

RESPIRATORY PROTECTION: Maintain oxygen levels above 19.5% in the workplace. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

EYE PROTECTION: Splash goggles or safety glasses, for protection from rapidly expanding gases and splashes of the Acetone. If necessary, refer to U.S. OSHA 29 CFR 1910.133, or Canadian Standards.

HAND PROTECTION: Wear mechanically-resistant gloves when handling cylinders of this gas. Wear chemically-resistant gloves when using this gas mixture to avoid exposure to Acetone. Neoprene gloves are recommended. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: Use body protection appropriate for task. Fire retardant clothing may be appropriate under some circumstances of use. Cotton clothing is recommended to prevent static build-up and discharge. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR.

9. PHYSICAL and CHEMICAL PROPERTIES

VAPOR DENSITY (@ 0°C): 1.1716 kg/m^3 (0.073 lb/ft^3)
pH: Not applicable.
SPECIFIC GRAVITY (air = 1): 0.906 .....
FREEZING POINT (@ 10 psig): -84°C (-119°F)
SOLUBILITY IN WATER @0°C (32°F) 1 atm: 1.7 vol/vol
BOILING POINT: -75°C (-103°F)
EVAPORATION RATE (nBuAc = 1): Not applicable.
EXPANSION RATIO: Not applicable.
ODOR THRESHOLD (Detection): 226 ppm .....
VAPOR PRESSURE (psig): 635
COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.
SPECIFIC VOLUME (ft^3/lb): 14.7

APPEARANCE AND COLOR: Colorless gas with a garlic-like, odor dissolved in acetone.

HOW TO DETECT THIS SUBSTANCE (warning properties): There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

10. STABILITY and REACTIVITY

STABILITY: Acetylene is stable at standard temperatures and pressures. Gaseous acetylene may decompose violently at elevated temperatures and pressures. Acetylene must not be used at pressures greater than 15 psig. The higher the pressure, the more likely it is for a reaction to occur.

DECOMPOSITION PRODUCTS: Carbon and hydrogen. When ignited in the presence of oxygen, carbon monoxide and carbon dioxide are formed.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Mixture with air containing between 3-82% Acetylene is explosive. Contact with bleaching powder may lead to formation of explosive chloroacetylenes. Finely divided cobalt metal decomposes and polymerizes Acetylene on contact, becoming incandescent. Copper metal forms explosive compounds with Acetylene. If warmed in air or oxygen, or on impact, copper acetylides may explode in subsequent contact with Acetylene. Interaction with halogens can be violent or explosive. Contact of Acetylene with concentrated nitric acid in presence of mercury forms explosive trinitromethane or tetranitromethane if sulfuric acid is subsequently added. Mixture with nitric oxide products will ignite at +30-50°C. Mixtures with oxygen are very explosive even at very low oxygen concentrations (< 2.5%). Molten potassium ignites in Acetylene, then explodes. Silver forms explosive compounds with Acetylene. Interaction with trifluoromethyl hypofluorite, in absence of nitrogen as diluent, is explosive on mixing. In addition, Acetylene is incompatible with mercury, mercuric salts, and silver salts, oxidizing materials, chlorine, fluorine. Zinc, hydrides (e.g. sodium hydride, cesium hydride), ozone, perchloric acid and potassium.

HAZARDOUS POLYMERIZATION: Can occur when heated or under pressure.

CONDITIONS TO AVOID: Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst. Liquid nitrogen should not be used as a trap, as it may cause acetylene to condense to its liquid or solid state, both of which are explosive.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following information is for Acetylene.

TCLo (Inhalation-Human) 20 pph: Behavioral: headache; Lungs, Thorax, or Respiration: dyspnea
LCLo (Inhalation-Human) 50 pph/5 minutes
LCLo (Inhalation-Mammal-Species Unspecified) 50 pph/5 minutes

Other data pertaining to the effects of Acetylene inhalation on humans are as follows:

Concentration	Symptom
100,000 ppm	Intoxication (drowsiness, dizziness, giddiness).
200,000 ppm	Severe intoxication.
300,000 ppm	Loss of coordination.
350,000 ppm	Unconsciousness after 5 minutes of exposure.

Effects on Short-Term Inhalation: Animals have shown tolerance to 10% Acetylene. In studies with dogs, cats, and rabbits, Acetylene acts as an anesthetic at 20% exposure. Recovery occurs if the oxygen level is maintained. In an oxygen-deficient environment, death may occur after 5-10 minutes. Rodents exposed to 25, 50, and 80 percent Acetylene in oxygen for 1-2 hours daily (93 hours total exposure), evidenced no weight change or cellular damage. Mixtures of 80% Acetylene/20% oxygen caused a rise in blood pressure in an exposed cat.

11. TOXICOLOGICAL INFORMATION (Continued)

SUSPECTED CANCER AGENT: Acetylene is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

IRRITANCY OF PRODUCT: Acetylene is not irritating; however, contact with the acetone component of Acetylene can be slightly irritating to contaminated skin or eyes.

SENSITIZATION TO THE PRODUCT: Acetylene is not known to cause sensitization in humans.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects Acetylene on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for Acetylene.

Embryotoxcity: No embryotoxic effects have been described for Acetylene.

Teratogenicity: No teratogenicity effects have been described for Acetylene.

Reproductive Toxicity: No reproductive toxicity effects have been described for Acetylene.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES (BEIs): Currently, Biological Exposure Indices (BEIs) are not applicable for this gas.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: This gas will be dissipated rapidly in well-ventilated areas. The following environmental data are available for this gas.

ACETYLENE: Water Solubility = 100 vol./100 vol. at 18 EC. Acetylene is not expected to be harmful to aquatic life. Only moderately toxic to fish. Volatility and low solubility suggest it would be rare for water to become critically polluted from accidental releases. Acetylene is biodegraded through various plant and bacterial systems by inactivating atmospheric acetylene through their nitrogen- fixing mechanisms.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: Any adverse effect on animals would be related to oxygen deficient environments and the anesthetic properties of Acetylene at high concentrations of exposure. The following data are available for effects on plant-life:

Sweet pea: declination in seedling: 250 ppm, 3 days

Tomato: Epinasty in petiole: 50 ppm, 2 days.

EFFECT OF CHEMICAL ON AQUATIC LIFE: The following aquatic toxicity data are available for Acetylene.

LC_{50} (river trout): 33 hours, 200 mg/L

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Product removed from the cylinder must be disposed of in accordance with appropriate U.S. Federal, State, and local regulations or with regulations of Canada and its Provinces. Return cylinders with residual product to Airgas, Inc. Do not dispose of locally.

14. TRANSPORTATION INFORMATION

THIS GAS IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME:	Acetylene, dissolved
HAZARD CLASS NUMBER and DESCRIPTION:	2.1 (Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1001
PACKING GROUP:	Not Applicable
DOT LABEL(S) REQUIRED:	Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 116

MARINE POLLUTANT: Acetylene is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: Acetylene is considered as Dangerous Goods, per regulations of Transport Canada. The use of the above U.S. DOT information from the U.S. 49 CFR regulations is allowed for shipments that originate in the U.S. For shipments via ground vehicle or rail that originate in Canada, the following information is applicable.

PROPER SHIPPING NAME:	Acetylene, dissolved
HAZARD CLASS NUMBER and DESCRIPTION:	2.1 (Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1001
PACKING GROUP:	Not Applicable
HAZARD LABEL(S) REQUIRED:	Class 2.1 (Flammable Gas)
SPECIAL PROVISIONS:	38, 42
EXPLOSIVE LIMIT & LIMITED QUANTITY INDEX:	0
ERAP INDEX:	None
PASSENGER CARRYING SHIP INDEX:	75

PASSENGER CARRYING ROAD OR RAIL VEHICLE INDEX: Forbidden

MARINE POLLUTANT: Acetylene is not listed by Transport Canada as a Marine Pollutant.

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: Acetylene is not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this material. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,554 kg) may apply, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.

U.S. TSCA INVENTORY STATUS: Acetylene is on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Acetylene is subject to the reporting requirements of Section 112(r) of the Clean Air Act, unless used as a fuel. The Threshold Quantity for this gas is 10,000 lb (4554 kg). Depending on specific operations involving the use of Acetylene, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Acetylene is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lb (4,554 kg) or greater is covered under this regulation unless it is used as a fuel.

U.S. STATE REGULATORY INFORMATION: Acetylene is covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Acetylene.
California - Permissible Exposure Limits for Chemical Contaminants: Acetylene.
Florida - Substance List: Acetylene.
Illinois - Toxic Substance List: Acetylene.
Kansas - Section 302/313 List: No.
Massachusetts - Substance List: Acetylene.
Michigan - Critical Materials Register: No.
Minnesota - List of Hazardous Substances: Acetylene.
Missouri - Employer Information/Toxic Substance List: Acetylene.
New Jersey - Right to Know Hazardous Substance List: Acetylene.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.
Pennsylvania - Hazardous Substance List: Acetylene.
Rhode Island - Hazardous Substance List: Acetylene.
Texas - Hazardous Substance List: No.
West Virginia - Hazardous Substance List: No.
Wisconsin - Toxic and Hazardous Substances: No.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): Acetylene is not on the California Proposition 65 lists.

CGA LABELING (For Compressed Gas):

DANGER: FLAMMABLE GAS UNDER PRESSURE.
CAN FORM EXPLOSIVE MIXTURES WITH AIR.
FUSIBLE PLUGS ON TOP, BOTTOM, OR VALVE MELT AT 212°F (100°C).
DO NOT DISCHARGE AT PRESSURES ABOVE 15 PSIG (103 kPa)

ODOR: Garlic-like.
Keep away from heat, flames, and sparks.
Store and use width adequate ventilation.
Use equipment rated for cylinder pressure.
Close valve after each use and when empty.
Use in accordance with the Material Safety Data Sheet.
Cylinder contains acetone solvent, which may cause irritation.

NOTE: DO NOT REMOVE THIS PRODUCT LABEL

ADDITIONAL CANADIAN REGULATIONS:

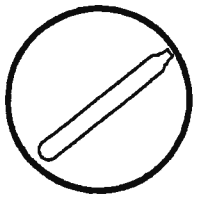
CANADIAN DSL INVENTORY: Acetylene listed on the DSL Inventory.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: Acetylene is not on the CEPA Priorities Substances Lists.

CANADIAN WHMIS SYMBOLS:

Class A: Compressed Gas
Class B1: Flammable Gas



16. OTHER INFORMATION

PREPARED BY:

CHEMICAL SAFETY ASSOCIATES, Inc.
PO Box 3519, La Mesa, CA 91944-3519
619/670-0302

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following

CAS #: This is the Chemical Abstract Service Number that uniquely identifies each constituent.

EXPOSURE LIMITS IN AIR:

CEILING LEVEL: The concentration that shall not be exceeded during any part of the working exposure.

LOQ: Limit of Quantitation.

MAK: Federal Republic of Germany Maximum Concentration Values in the workplace.

NE: Not Established. When no exposure guidelines are established, an entry of NE is made for reference.

NIC: Notice of Intended Change.

NIOSH CEILING: The exposure that shall not be exceeded during any part of the workday. If instantaneous monitoring is not feasible, the ceiling shall be assumed as a 15-minute TWA exposure (unless otherwise specified) that shall not be exceeded at any time during a workday.

NIOSH RELs: NIOSH's Recommended Exposure Limits.

PEL-Permissible Exposure Limit: OSHA's Permissible Exposure Limits. This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase; "Vacated 1989 PEL," is placed next to the PEL that was vacated by Court Order.

SKIN: Used when a there is a danger of cutaneous absorption.

STEL-Short Term Exposure Limit: Short Term Exposure Limit, usually a 15-minute time-weighted average (TWA) exposure that should not be exceeded at any time during a workday, even if the 8-hr TWA is within the TLV-TWA, PEL-TWA or REL-TWA.

TLV-Threshold Limit Value: An airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour.

TWA-Time Weighted Average: Time Weighted Average exposure concentration for a conventional 8-hr (TLV, PEL) or up to a 10-hr (REL) workday and a 40-hr workweek.

IDLH-Immediately Dangerous to Life and Health: This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS: This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards.

HEALTH HAZARD:

0 (Minimal Hazard: No significant health risk, irritation of skin or eyes not anticipated. *Skin Irritation*: Essentially non-irritating. PII or Draize = "0". *Eye Irritation*: Essentially non-irritating, or minimal effects which clear in < 24 hours [e.g. mechanical irritation]. Draize = "0". *Oral Toxicity LD_{50} Rat*: < 5000 mg/kg. *Dermal Toxicity LD_{50}Rat or Rabbit*: < 2000 mg/kg. *Inhalation Toxicity 4-hrs LC_{50} Rat*: < 20 mg/L.); **1** (Slight Hazard: Minor reversible injury may occur; slightly or mildly irritating. *Skin Irritation*: Slightly or mildly irritating. *Eye Irritation*: Slightly or mildly irritating. *Oral Toxicity LD_{50} Rat*: > 500-5000 mg/kg. *Dermal Toxicity LD_{50}Rat or Rabbit*: > 1000-2000 mg/kg. *Inhalation Toxicity LC_{50} 4-hrs :Rat*: > 2-20 mg/L); **2** (Moderate Hazard: Temporary or transitory injury may occur. *Skin Irritation*: Moderately irritating; primary irritant; sensitizer. PII or Draize > 0, < 5. *Eye Irritation*: Moderately to severely irritating and/or corrosive; reversible corneal opacity; corneal involvement or irritation clearing in 8-21 days. Draize > 0, ≤ 25. *Oral Toxicity LD_{50} Rat*: > 50-500 mg/kg. *Dermal Toxicity LD_{50}Rat or Rabbit*: > 200-1000 mg/kg. *Inhalation Toxicity LC_{50} 4-hrs Rat*: > 0.5-2 mg/L.);

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

HEALTH HAZARD (continued):

3 (Serious Hazard: Major injury likely unless prompt action is taken and medical treatment is given; high level of toxicity; corrosive. *Skin Irritation*: Severely irritating and/or corrosive; may destroy dermal tissue, cause skin burns, dermal necrosis. PII or Draize > 5-8 with destruction of tissue. *Eye Irritation*: Corrosive, irreversible destruction of ocular tissue; corneal involvement or irritation persisting for more than 21 days. Draize > 80 with effects irreversible in 21 days. *Oral Toxicity LD_{50} Rat*: > 1-50 mg/kg. *Dermal Toxicity LD_{50}Rat or Rabbit*: > 20-200 mg/kg. *Inhalation Toxicity LC_{50} 4-hrs Rat*: > 0.05-0.5 mg/L.); **4** (Severe Hazard: Life-threatening; major or permanent damage may result from single or repeated exposure. *Skin Irritation*: Not appropriate. Do not rate as a "4", based on skin irritation alone. *Eye Irritation*: Not appropriate. Do not rate as a "4", based on eye irritation alone. *Oral Toxicity LD_{50} Rat*: ≤ 1 mg/kg. *Dermal Toxicity LD_{50}Rat or Rabbit*: ≤ 20 mg/kg. *Inhalation Toxicity LC_{50} 4-hrs Rat*: ≤ 0.05 mg/L).

FLAMMABILITY HAZARD:

0 (Minimal Hazard-Materials that will not burn in air when exposure to a temperature of 815.5°C [1500°F] for a period of 5 minutes.); **1** (Slight Hazard-Materials that must be pre-heated before ignition can occur. Material require considerable pre-heating, under all ambient temperature conditions before ignition and combustion can occur, including: Materials that will burn in air when exposed to a temperature of 815.5°C (1500°F) for a period of 5 minutes or less; Liquids, solids and semisolids having a flash point at or above 93.3°C [200°F] (e.g. OSHA Class IIIB, or; Most ordinary combustible materials [e.g. wood, paper, etc.]; **2** (Moderate Hazard-Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not, under normal conditions, form hazardous atmospheres in air, but under high ambient temperatures or moderate heating may release vapor in sufficient quantities to produce hazardous atmospheres in air, including: Liquids having a flash-point at or above 37.8°C [100°F]; Solid materials in the form of course dusts that may burn rapidly but that generally do not form explosive atmospheres; Solid materials in a fibrous or shredded form that may burn rapidly and create flash fire hazards (e.g. cotton, sisal, hemp; Solids and semisolids that readily give off flammable vapors.); **3** (Serious Hazard- Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures, or, unaffected by ambient temperature, are readily ignited under almost all conditions, including: Liquids having a flash point below 22.8°C [73°F] and having a boiling point at or above 38°C [100°F] and below 37.8°C [100°F] [e.g. OSHA Class IB and IC]; Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and are readily dispersed in air [e.g., dusts of combustible solids, mists or droplets of flammable liquids]; Materials that burn extremely rapidly, usually by reason of self-contained oxygen [e.g. dry nitrocellulose and many organic peroxides]); **4** (Severe Hazard-Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air, and which will burn readily, including: Flammable gases; Flammable cryogenic materials; Any liquid or gaseous material that is liquid while under pressure and has a flash point below 22.8°C [73°F] and a boiling point below 37.8°C [100°F] [e.g. OSHA Class IA; Material that ignite spontaneously when exposed to air at a temperature of 54.4°C [130°F] or below [e.g. pyrophoric]).

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

PHYSICAL HAZARD:

0 (*Water Reactivity*: Materials that do not react with water. *Organic Peroxides*: Materials that are normally stable, even under fire conditions and will not react with water. *Explosives*: Substances that are Non-Explosive. Unstable *Compressed Gases*: No Rating. *Pyrophorics*: No Rating. *Oxidizers*: No "0" rating allowed. *Unstable Reactives*: Substances that will not polymerize, decompose, condense or self-react.); **1** (*Water Reactivity*: Materials that change or decompose upon exposure to moisture. *Organic Peroxides*: Materials that are normally stable, but can become unstable at high temperatures and pressures. These materials may react with water, but will not release energy. *Explosives*: Division 1.5 & 1.6 substances that are very insensitive explosives or that do not have a mass explosion hazard. *Compressed Gases*: Pressure below OSHA definition. *Pyrophorics*: No Rating. *Oxidizers*: Packaging Group III; Solids: any material that in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Group I and II are not met. Liquids: any material that exhibits a mean pressure rise time less than or equal to the pressure rise time of a 1:1 nitric acid (65%)/cellulose mixture and the criteria for Packing Group I and II are not met. *Unstable Reactives*: Substances that may decompose, condense or self-react, but only under conditions of high temperature and/or pressure and have little or no potential to cause significant heat generation or explosive hazard. Substances that readily undergo hazardous polymerization in the absence of inhibitors.); **2** (*Water Reactivity*: Materials that may react violently with water. *Organic Peroxides*: Materials that, in themselves, are normally unstable and will readily undergo violent chemical change, but will not detonate. These materials may also react violently with water. *Explosives*: Division 1.4 – Explosive substances where the explosive effect are largely confined to the package and no projection of fragments of appreciable size or range are expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package. *Compressed Gases*: Pressurized and meet OSHA definition but < 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics*: No Rating. *Oxidizers*: Packing Group II Solids: any material that, either in concentration tested, exhibits a mean burning time of less than or equal to the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met. Liquids: any material that exhibits a mean pressure rise time less than or equal to the pressure rise of a 1:1 aqueous sodium chlorate solution (40%)/cellulose mixture and the criteria for Packing Group I are not met. *Unstable Reactives*: Substances that may polymerize, decompose, condense, or self-react at ambient temperature and/or pressure, but have a low potential for significant heat generation or explosion. Substances that readily form peroxides upon exposure to air or oxygen at room temperature); **3** (*Water Reactivity*: Materials that may form explosive reactions with water. *Organic Peroxides*: Materials that are capable of detonation or explosive reaction, but require a strong initiating source, or must be heated under confinement before initiation; or materials that react explosively with water. *Explosives*: Division 1.2 – Explosive substances that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but do not have a mass explosion hazard. *Compressed Gases*: Pressure ≥ 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics*: No Rating. *Oxidizers*: Packing Group I Solids: any material that, in either concentration tested, exhibits a mean burning time less than the mean burning time of a 3.:2 potassium bromate/cellulose mixture. Liquids: Any material that spontaneously ignites when mixed with cellulose in a 1:1 ratio, or which exhibits a mean pressure rise time less than the pressure rise time of a 1:1 perchloric acid (50%)/cellulose mixture. *Unstable Reactives*: Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a moderate potential to cause significant heat generation or explosion.);

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

PHYSICAL HAZARD (continued):

4 (*Water Reactivity*: Materials that react explosively with water without requiring heat or confinement. *Organic Peroxides*: Materials that are readily capable of detonation or explosive decomposition at normal temperature and pressures. *Explosives*: Division 1.1 & 1.2-explosive substances that have a mass explosion hazard or have a projection hazard. A mass explosion is one that affects almost the entire load instantaneously. *Compressed Gases*: No Rating. *Pyrophorics*: Add to the definition of Flammability "4". *Oxidizers*: No "4" rating. *Unstable Reactives*: Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a high potential to cause significant heat generation or explosion.).

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS:

HEALTH HAZARD: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury).

FLAMMABILITY HAZARD AND REACTIVITY HAZARD: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR: Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Human and Animal Toxicology: Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD_{50}** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC_{50}** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m^3** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo, LDLo,** and **LDo,** or **TC, TCo, LCLo,** and **LCo,** the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA.** IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information: BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

DEFINITIONS OF TERMS (Continued)

ECOLOGICAL INFORMATION:

EC is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. **TL_m** = median threshold limit; Coefficient of Oil/Water Distribution is represented by **log K_{ow}** or **log K_{oc}** and is used to assess a substance's behavior in the environment.

REGULATORY INFORMATION:

U.S. and CANADA:

This section explains the impact of various laws and regulations on the material. **ACGIH:** American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **EPA** is the U.S. Environmental Protection Agency. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively.

Superfund Amendments and Reauthorization Act (**SARA**); the Canadian Domestic/Non-Domestic Substances List (**DSL/NDSL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA or Superfund**); and various state regulations. This section also includes information on the precautionary warnings which appear on the material's package label. **OSHA** - U.S. Occupational Safety and Health Administration.

HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

[✓] ADD [ ] DELETE [ ] REVISED 1 Page 2 of ___ 2

FACILITY ID# 3 0 0 0 3 5 38 BUSINESS NAME 3
PACIFIC WAVE SYSTEMS, INC.

I. FACILITY INFORMATION

CHEMICAL LOCATION 4
CHEMICAL LOCKER

CONFIDENTIAL LOCATION EPCRA [ ] Yes [✓] No 5 | MAP # SITE MAP #1 6 | GRID # 4B 7

II. CHEMICAL INFORMATION

CHEMICAL NAME
ACETONE

WASTE [ ] Yes 8

TRADE SECRET [ ] Yes [✓] No 11
If EPCRA see instructions

COMMON NAME 9
ACETONE

An EHS Chemical [ ] Yes [✓] No 12
*If EHS is "Yes", all amounts must be LBS

CAS # 10
67-64-1

FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE (Check one item only) [ ] a. PURE [✓] b. MIXTURE [ ] c. WASTE 14

RADIOACTIVE [ ] Yes [✓] No 15

CURIES N/A 16

PHYSICAL STATE (Check one item only) [ ] a. SOLID [✓] b. LIQUID [ ] c. GAS 17

FED HAZARD CATEGORIES [✓] a. FIRE [✓] b. REACTIVE [ ] c. PRESSURE RELEASE 18
[✓] d. ACUTE HEALTH [ ] e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 1 GAL 19

MAXIMUM DAILY AMOUNT 2 GALS 20

ANNUAL WASTE AMOUNT 21

STATE WASTE CODE 22

UNITS [✓] a. GALLONS [ ] b. CUBIC FEET 23 [ ] c. POUNDS [ ] d. TONS
*If EHS, amount must be in pounds.

DAYS ON SITE 24
365

LARGEST CONTAINER 25
1 GALLON

STORAGE CONTAINER (Check all that apply) 26

[ ] a. ABOVEGROUND TANK	[ ] e. PLASTIC DRUM	[ ] i. VAT	[ ] m CYLINDER	[ ] q. TANK WAGON
[ ] b. UNDERGROUND TANK	[ ] f. NONMETALLIC DRUM	[ ] l. FIBER DRUM	[ ] n. GLASS CONTAINER	[ ] r. RAIL CAR
[ ] c. TANK INSIDE BLDG	[✓] g. METAL CONTAINER	[ ] l. BAG(S)	[ ] o PLASTIC CONTAINER	[ ] s. TOTE BIN
[ ] d STEEL DRUM	[ ] h. CARBOY	[ ] l. BOX(S)	[ ] p. IN MACH OR EQUIP	[ ] t. OTHER_____

STORAGE PRESSURE [✓] a. AMBIENT [ ] b. ABOVE AMBIENT [ ] c. BELOW AMBIENT 27

STORAGE TEMPERATURE [✓] a. AMBIENT [ ] b. ABOVE AMBIENT [ ] c. BELOW AMBIENT [ ] d. CRYOGENIC 28

	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	>99.5 29	ACETONE 30	[ ] Yes [✓] No 31	67-64-1 32
2	29	30	[ ] Yes [ ] No 31	32
3	29	30	[ ] Yes [ ] No 31	32
4	29	30	[ ] Yes [ ] No 31	32
5	29	30	[ ] Yes [ ] No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

PLACARDING INFORMATION

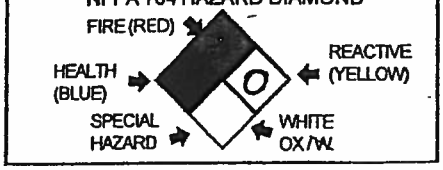
UNDOT # UN 1090 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS 3 (FLAMMABLE LIQUID) 34
Refer to shipping papers or MSDS

EPCRA [ ] YES [✓] NO 35

X _____ 36
If EPCRA, Please Sign Here

NFPA 704 HAZARD DIAMOND



MAKE AS MANY COPIES OF CHEMICAL INVENTORY FORM AS NEEDED

haz inven (form 3)

MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.
THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this MSDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Identity: Acetone
Synonyms: 2-propanone, dimethyl ketone, dimethylformaldehyde, Dimethylketal, beta-ketopropane

Chemical Formula: CH3000H3

CAS Name & Number:	**2-Propanone, 67-64-1**
Company Identity:	**Conchemco, Ltd.**
Company Address:	**17819 Davenport Rd., Ste. #110**
Company City:	**Dallas, TX 75252**
Company Phone:	**972-248-4253**
Chemtrec:	**800-424-9300**
Effective Date:	**11/12/06**

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	wt. %
Acetone	67-64-1	>99.5

SECTION 3. HAZARDS IDENTIFICATION

PRECAUTIONARY INFORMATION:

DANGER: Highly flammable liquid. Eye injury. Skin irritant. Toxic by inhalation/toxic by ingestion. May cause nausea and dizziness. May cause central nervous system effect.

Primary Routes of Exposure:
Inhalation, ingestion, skin, and eye contact.

HAZARD CLASSIFICATION:

Acute Effects:
Central nervous system depression is the most common effect, resembling intoxication by ethyl alcohol. Excitation is followed by impaired motor coordination, slurred speech, sensory disturbances such as double vision and vertigo, flushing of the face, rapid pulse, and sweating. Nausea and vomiting are common. Other symptoms include dryness of the mouth and throat, headache, sleepiness, dizziness, light-headedness, weakness, and loss of energy. Very high exposures may cause unconsciousness, coma, or death. Kidney toxicity may occur but is rare following acute exposure. Post-alcoholic headache and gastritis are common in recovery. Inhalation exposure may cause lung irritation and cough. Skin contact may result in redness, irritation, and dermatitis since acetone has a drying effect on the skin. Contact with eyes can result in irritation and eye injury.

Chronic Effects:
Irritation of the eyes, nose, and throat are the most common problems associated with chronic exposure to acetone. Central nervous system effects such as dizziness and sleepiness can occur, as can dryness, irritation, and inflammation of the skin.

Carcinogenic:
Acetone is not considered carcinogenic by OSHA, NIOSH, NTP, IARC or EPA.

Potential Adverse Chemical Interactions:
Acetone may increase the toxicity to the liver and kidney of chemicals such as ethanol, 1, 2-dichloroethylene, and chloroform. Humans with liver or kidney disease may be at increased risk due to this protestation effect.

SECTION 4. FIRST AID MEASURES

Inhalation:
If victim is overcome, remove to fresh air and call a physician. If breathing is irregular or has stopped, administer artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Skin Contact:
Wash thoroughly with water. If clothing is contaminated, promptly remove clothing and wash the skin with soap and water for at least 15 minutes. Get medical attention promptly. If systemic effects are observed, first aid procedures are the same as above for inhalation.

Eye Contact:
Immediately flush eyes with room temperature water for at least 15 minutes, occasionally lifting the lower and upper lids. Consult an ophthalmologist without delay. Contact lenses should not be worn when working with this chemical.

If victim has swallowed large amounts and is conscious and not convulsing, induce vomiting (30 ml syrup of ipecac for adults, one or two doses) and call a physician promptly. Never give fluids to an unconscious person.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point	**-17° C (closed cup)**
Flammable Limits (% By Vol.)	
Lower Explosive Limit (LEL)	**2.6**
Upper Explosive Limit (UEL)	**12.8**
Auto Ignition Temperature	**465° C**

Fire Fighting Procedures/Fire Extinguishing Media:
Keep unnecessary people away; isolate hazard area and deny entry. Avoid breathing vapors, stay upwind. Do not enter fire area without structural firefighter's protective equipment including NIOSH approved self-contained breathing apparatus in positive pressure mode. Use water spray to knock down vapors. Use carbon dioxide extinguishers or dry powder for small fires. Large fires are best controlled by alcohol foam, fog, and water spray. Use water spray to cool containers exposed to acetone fires. Stay away from ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Isolate for 2 mile in all directions if tank, rail car, or tank truck is involved in fire. Acetone - water solutions containing more than 2.0 wt.% acetone will flash at less than 38°C, and should be considered flammable.

Unusual Fire and Explosion Hazards:
Dangerous fire hazard when exposed to heat, sparks, flame, or oxidants. Acetone is extremely flammable and its vapors form explosive mixtures with air. Acetone containers may explode in heat of foe. Vapors of acetone are heavier than air, and may travel considerable distance to a source of ignition and flash back. Do not use a direct stream of water on acetone foes, as direct water streams have a tendency to spread acetone foes. Water solutions of acetone may still be flammable because of released vapors.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Shut off all ignition sources. No smoking or flares allowed in the spill area. Restrict access to the spill area, and move unprotected personnel upwind of the area. Allow only trained personnel wearing appropriate protective clothing and self-contained breathing apparatus in the vicinity of the spill. Prevent acetone from entering water bodies, drains or any sewage collection systems. For small spills, take up with sand or other absorbent material and place into containers for later disposal. Control large spills by diking. Dispose spill material in accordance with federal, state, and local regulations. Acetone spills over the reportable quantity (5,000 lbs.) must be reported to the National Response Center (800-424-8802).

SECTION 7. HANDLING AND STORAGE

Storage:
Store in a well ventilated place, away from sources of ignition and direct sunlight and in accordance with 29 CFR 1910.106. Acetone should be stored in drums or storage containers made from non-flammable materials. Store away from plastics, oxidizing materials, mineral acids, and chloroform Store acetone in an area equipped with automatic sprinklers or fire extinguishing system All acetone storage and transfer equipment should be electrically grounded and bonded to prevent possible ignition from static sparks. Use spark resistant equipment to store acetone. Do not use air pressure to unload acetone from containers. Containers of this material may be hazardous when empty. Since emptied containers retain product residues, assume emptied containers to have the same hazards as full containers. Wear appropriate protective equipment when handling acetone. Follow all federal, state, and local regulations as well as all insurance codes when storing and handling acetone.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection:
Use appropriate NIOSH approved respirators in accordance with 29 CFR 1910.132 and 1910.134, to prevent overexposure. Respirators must be selected based on the airborne levels found in the workplace and must not exceed the working limits of the respirator.

Ventilation:
Provide local ventilation to maintain exposure levels below recommended exposure limits. Use explosion proof ventilation equipment. Local exhaust ventilation should comply with OSHA regulations and the American Conference of Governmental Industrial Hygienists, Industrial Ventilation - A Manual of Recommended Practice.

Eye Protection:
Use splash proof chemical safety goggles. Follow the eye and face protection guidelines of 29 CFR 1910.132 and 1910.133. Where there is any possibility that individual's eyes may be exposed to acetone, an eye wash fountain (in accordance with 29 CFR 1910.151) should be within the immediate work area for emergency use. Contact lenses should not be worn when working with this chemical.

Protective Gloves: Use butyl, Viton or neoprene gloves.

Occupational Exposure Guidelines for Acetone

OSHA	**PEL (Ceiling)**	**1000 ppm**
ACGIH	**TLV-TWA**	**500 ppm**
	TLV-STEL	**750 ppm**
NIOSH	**REL (10hr TWA)**	**250 ppm**
	IDLH	**2500 ppm**

Other:
Where there is a possibility of exposure of an individual's body to acetone, facilities for quick drenching of the body should be provided (in accordance with 29 CFR 1910.151) within the immediate work area for emergency use. Such individuals should be provided with and required to use impervious clothing in accordance with 29 CFR 1910.132.

SECTION 9. PHYSICAL AND CHEMICAL

Appearance	**Colorless liquid**
Odor	**Pungent, sweetish odor**
Molecular Weight	**58.09**
Boiling Point	**56.1° C**
Melting Point	**-95.35° C**
Solubility	**Completely miscible in water; miscible in alcohol, chloroform, dimethylformamide, ethers, and most oils**
Specific Gravity (Water = 1.0)	**0.7910 - 0.7930 at 20°/20° C**
Vapor Density (Air = 1.0)	**2.00**
Vapor Pressure	**185 mmHg at 20° C**
pH	**Approximately 7 in 1/1 volume with water**

SECTION 10. STABILITY & REACTIVITY

Stability:
Stable under normal conditions

Polymerization:
Hazardous polymerization does not occur

Hazardous Decomposition Products:
Combustion yields carbon dioxide and carbon monoxide

Incompatible Materials:
Acids and strong oxidizing materials

SECTION 11. TOXICOLOGICAL INFORMATION

The following information on acetone is extracted from both the TOXNET and RTECS databases.

Animal Toxicity

Oral:	Dog LD_{50}	8g/kg
	Rat LD_{50}	5.8 g/kg
	Human $^{TD}L o$	2.9 g/kg (coma)
Dermal:	Rabbit LD_{50}	20 g/kg
Inhalation:	Mouse LC50	46,420 ppm (62 min)
	Rat LC_{50}	21,142 ppm (8 hr)
	Human $TC_L o$	500 ppm for eye and throat irritation

$TC_L o$ = Lowest air concentration that is toxic to a given species.
LC_{50} = Air concentration that is lethal to 50% of a given species in a given period of time.
LD_{50} = Dose that is lethal to 50% of a given species by a given route of exposure.
TD_{LO} = Lowest dose that is toxic to a given species.

SECTION 12. ECOLOGICAL INFORMATION

Environmental Fate:
The following information on acetone is extracted from the TOXI~IET database maintained by the National Library of Medicine.

Atmosphere:
Based on an experimental vapor pressure of 231 mm Hg at 25 deg C, acetone is expected to exist solely as a vapor in the ambient atmosphere. Vapor-phase acetone is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals with an estimated atmospheric half-life of 71 days. Acetone also undergoes photodecomposition by sunlight with an estimated half-life of about 80 days.

Terrestrial:
Acetone is expected to have very high mobility in soils based upon an estimated Koc value of 1. Volatilization from dry soil surfaces is expected based upon the vapor pressure of this compound. Volatilization from moist soil surfaces is also expected based upon the measured Henry's Law constant of 1.87x 10-5 a=-cu m/mol.

Aquatic:
In water, acetone is not expected to adsorb to suspended solids or sediment based upon its estimated Koc value. Volatilization from water surfaces is expected to be an important environmental fate process given its estimated Henry's Law constant. Estimated half-lives for a model river and model lake are 38 and 333 hours, respectively. Experimentally determined volatilization half-lives in a shallow stream were measured in the range of 8-18 hours.

Biodegradation:
This compound is expected to biodegrade under aerobic and anaerobic conditions.

Ecotoxicity:
LC50 Daphnia magna 10 mg/L 24 to 48-Hr
LC50 Lepomis macrochirus (Bluegill Sunfish) 8,300 mg/L 96 hr
LC50 Salmo Gairdneri (Rainbow Trout) 5,640 mg/L/96 hr @ 12 deg C (95% Confidence Limit 4,740-6,330 mg/L), wt. 1.0 g

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Management Information: Do not dump into any sewers, on the ground, or into any body of water. Any disposal practice must be in compliance with local, state and federal laws and regulations (contact local or state environmental agency for specific rules). Waste characterization and compliance with applicable laws are the responsibility of the waste generator.

SECTION 14. TRANSPORT INFORMATION

Proper Shipping Name	**Acetone**
DOT Hazard Class	**3, (Flammable liquid)**
DOT Shipping ID No.	**UN 1090**
DOT Labeling	**Flammable liquid**
PG	**II**
Placard	**Flammable**

SECTION 15. REGULATORY INFORMATION

Regulatory information is not meant to be all-inclusive. It is the user's responsibility to ensure compliance with federal, state or provincial and local laws.

SARA Title III:
Title III Section 302 and 304 of the Act; Extremely Hazardous Substances (40 CFR 355)

COMPONENT	CAS No.	TPQ (lbs.)	RQ (lbs.)
None	Not Applicable	Not Applicable	Not Applicable

Note: TPQ - Threshold Planning Quantity RQ - Reportable Quantity

Section 311 Hazard Categorization (40 CFR 370)

ACUTE	CHRONIC	FIRE	PRESSURE	REACTIVE
X	X	X		

Section 313 Toxic Chemicals (40 CFR 372.65)

COMPONENT	CAS No.	WT. %
None	Not Applicable	Not Applicable

CERCLA:
CERCLA Section 102(a) Hazardous Substances (40 CFR 302.4)

COMPONENT	CAS No.	WT. %	RQ (lbs)
Acetone	67-64-1	>99.5	5,000

RCRA:
40 CFR 261.33 Hazardous waste number: Acetone waste and material contaminated with acetone would be regulated as a hazardous waste material with hazardous waste number U002.

TSCA:
Acetone is listed on the TSCA inventory.

Proposition 65:
Acetone is not listed on the California Proposition 65 list.

Canadian Regulations:
This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33 and the MSDS contains all information required by this regulation.
WHMIS Classification- Class B, Division 2

WHMIS Ingredient Disclosure List
Acetone CAS 67-64-1 Cutoff- 1%

Canadian Environmental Protection Act (CEPA):
All substances in this product are listed on the Canadian Domestic Substances (DSL) list or are not required to be listed

SECTION 16. OTHER INFORMATION

IMPORTANT:
The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. CONCHEMCO, LTD. MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY OR COMPLETENESS OF THE INFORMATION AND DATA HEREIN. Conchemco will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading. This information relates to the material designated and may not be valid for such material used in combination with any other materials nor in any process.