

APPENDIX B
MATERIAL SAFETY DATA SHEETS

**MATERIAL SAFETY DATA SHEETS
RELEVANT TO CLEANING SERVICES INDUSTRY**



Material Safety Data Sheet

I Product: CLOROX REGULAR-BLEACH		
Description: CLEAR, LIGHT YELLOW LIQUID WITH A CHARACTERISTIC CHLORINE ODOR		
Other Designations	Distributor	Emergency Telephone Nos.
Clorox Bleach EPA Reg. No. 5813-50	Clorox Sales Company 1221 Broadway Oakland, CA 94612	For Medical Emergencies call: (800) 446-1014 For Transportation Emergencies Chemtrec (800) 424-9300

<p>II Health Hazard Data</p> <p>DANGER: CORROSIVE. May cause severe irritation or damage to eyes and skin. Vapor or mist may irritate. Harmful if swallowed. Keep out of reach of children.</p> <p>Some clinical reports suggest a low potential for sensitization upon exaggerated exposure to sodium hypochlorite if skin damage (e.g., irritation) occurs during exposure. Under normal consumer use conditions the likelihood of any adverse health effects are low.</p> <p>Medical conditions that may be aggravated by exposure to high concentrations of vapor or mist: heart conditions or chronic respiratory problems such as asthma, emphysema, chronic bronchitis or obstructive lung disease.</p> <p>FIRST AID: <u>Eye Contact:</u> Hold eye open and rinse with water for 15-20 minutes. Remove contact lenses, after first 5 minutes. Continue rinsing eye. Call a physician. <u>Skin Contact:</u> Wash skin with water for 15-20 minutes. If irritation develops, call a physician. <u>Ingestion:</u> Do not induce vomiting. Drink a glassful of water. If irritation develops, call a physician. Do not give anything by mouth to an unconscious person. <u>Inhalation:</u> Remove to fresh air. If breathing is affected, call a physician.</p>	<p>III Hazardous Ingredients</p> <table border="1"> <thead> <tr> <th>Ingredient</th> <th>Concentration</th> <th>Exposure Limit</th> </tr> </thead> <tbody> <tr> <td>Sodium hypochlorite CAS# 7681-52-9</td> <td>6.15%</td> <td>Not established</td> </tr> <tr> <td>Sodium hydroxide CAS# 1310-73-2</td> <td><1%</td> <td>2 mg/m³;¹ 2 mg/m³;²</td> </tr> </tbody> </table> <p>¹ACGIH Threshold Limit Value (TLV) - Ceiling ²OHSA Permissible Exposure Limit (PEL) – Time Weighted Average (TWA)</p> <p>None of the ingredients in this product are on the IARC, NTP or OSHA carcinogen lists.</p>	Ingredient	Concentration	Exposure Limit	Sodium hypochlorite CAS# 7681-52-9	6.15%	Not established	Sodium hydroxide CAS# 1310-73-2	<1%	2 mg/m ³ ; ¹ 2 mg/m ³ ; ²
Ingredient	Concentration	Exposure Limit								
Sodium hypochlorite CAS# 7681-52-9	6.15%	Not established								
Sodium hydroxide CAS# 1310-73-2	<1%	2 mg/m ³ ; ¹ 2 mg/m ³ ; ²								

<p>IV Special Protection and Precautions</p> <p>No special protection or precautions have been identified for using this product under directed consumer use conditions. The following recommendations are given for production facilities and for other conditions and situations where there is increased potential for accidental, large-scale or prolonged exposure.</p> <p><u>Hygienic Practices:</u> Avoid contact with eyes, skin and clothing. Wash hands after direct contact. Do not wear product-contaminated clothing for prolonged periods.</p> <p><u>Engineering Controls:</u> Use general ventilation to minimize exposure to vapor or mist.</p> <p><u>Personal Protective Equipment:</u> Wear safety glasses. Use rubber or nitrile gloves if in contact liquid, especially for prolonged periods.</p> <p>KEEP OUT OF REACH OF CHILDREN</p>	<p>V Transportation and Regulatory Data</p> <p><u>DOT/IMDG/IATA</u> - Not restricted.</p> <p><u>EPA - SARA TITLE III/CERCLA:</u> Bottled product is not reportable under Sections 311/312 and contains no chemicals reportable under Section 313. This product does contain chemicals (sodium hydroxide <0.2% and sodium hypochlorite <7.35%) that are regulated under Section 304/CERCLA.</p> <p><u>TSCA/DSL STATUS:</u> All components of this product are on the U.S. TSCA Inventory and Canadian DSL.</p>
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<p>VI Spill Procedures/Waste Disposal</p> <p><u>Spill Procedures:</u> Control spill. Containerize liquid and use absorbents on residual liquid; dispose appropriately. Wash area and let dry. For spills of multiple products, responders should evaluate the MSDS's of the products for incompatibility with sodium hypochlorite. Breathing protection should be worn in enclosed, and/or poorly ventilated areas until hazard assessment is complete.</p> <p><u>Waste Disposal:</u> Dispose of in accordance with all applicable federal, state, and local regulations.</p>	<p>VII Reactivity Data</p> <p>Stable under normal use and storage conditions. Strong oxidizing agent. Reacts with other household chemicals such as toilet bowl cleaners, rust removers, vinegar, acids or ammonia containing products to produce hazardous gases, such as chlorine and other chlorinated species. Prolonged contact with metal may cause pitting or discoloration.</p>
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<p>VIII Fire and Explosion Data</p> <p><u>Flash Point:</u> None <u>Special Firefighting Procedures:</u> None <u>Unusual Fire/Explosion Hazards:</u> None. Not flammable or explosive. Product does not ignite when exposed to open flame.</p>	<p>IX Physical Data</p> <p>Boiling point.....approx. 212°F/100°C Specific Gravity (H₂O=1) ~ 1.1 at 70°F Solubility in Water complete pH ~11.4</p>
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MATERIAL SAFETY DATA SHEET

Supersedes: 2/1/00

Issue Date: 8/01

Issue Date: N/A

SECTION I - CHEMICAL PRODUCT

Identity: **Liquid Cleaner**

Brands: **COMET Cleaner with Bleach (Professional Line)**

Hazard Rating: 1

Health: 1

4=EXTREME

Flammability: 0

3=HIGH

Reactivity: 0

2= MODERATE

1=SLIGHT

Emergency Telephone Number: 1-800-332-7787 or call Local Poison Control Center

SECTION II - COMPOSITION AND INGREDIENTS

Ingredients/Chemical Name: Cleaning agents, bleach (sodium hypochlorite), surface safety agent, perfume and water.

This mixture, when tested as a whole, is considered an eye irritant within the meaning of the OSHA Communication Standard

Hazardous Ingredients as defined by OSHA, 29 CFR 1910.1200.

<u>Chemical Name</u>	<u>Common Name</u>	<u>CAS No.</u>	<u>Recommended Limits</u>	<u>Composition Range</u>	<u>LD50/LC50</u>
Sodium hypochlorite	Bleach	7681- 52-9	ACGIH STEL: 2mg/m ³	0. 5-1 5%	
Sodium hydroxide	Caustic soda	1310-73-2	ACGIH STEL: 2 mg/m ³ OSHA PEL: 2 mg/m ³	0.1-1%	

SECTION III - HAZARDS IDENTIFICATION

Health Hazards (Acute and Chronic):

Ingestion: May cause mild , transient gastrointestinal irritation with nausea, vomiting or diarrhea

Eye Contact: May cause mild, transient irritation with stinging and tearing similar to that caused by other detergents.

Skin: May be irritating to skin. May further irritate already irritated or extremely dry skin.

Inhalation: Mild mucous membrane irritant.

SECTION IV - FIRST AID INFORMATION

Emergency and First Aid Procedures:

Ingestion: Drink 1 or 2 large glasses of water.. If large amounts are ingested, call a physician.

Eye Contact: Flush with large amounts of water for at least 15 minutes.

Skin: Wash exposed area thoroughly area with soap and water and discontinue use. Remove contaminated clothing.

Inhalation: Leave the area

Other: Product package has a caution statement: CAUTION: KEEP OUT OF REACH OF CHILDREN. May cause eye irritation. EYE IRRITANT: Avoid contact with eyes. May be irritating to skin. For sensitive skin or prolonged use, wear gloves. Do not mix with other cleaning products as irritating fumes may be released. In case of eye contact, flush thoroughly with water. If swallowed, drink a glass of water to dilute. Call a physician immediately.

SECTION V - FIRE FIGHTING INFORMATION			
Flash Point (Method Used): over 200°F (cc)	Explosive Limits:	<i>LEL:</i> N/A	<i>UEL:</i> N/A
Extinguishing Media: CO ₂ , water, dry chemical or “alcohol” foam			
Special Fire Fighting Procedures: Use water to keep fire exposed container cool.			
Unusual Fire Hazards: None known.			

SECTION VI - ACCIDENTAL RELEASE MEASURES
Personal Precautions: None
Environmental Precautions: DISPOSAL IS TO BE PERFORMED IN COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS. Do not landfill. Small quantities may be disposed of via sewer.
Steps To Be Taken in Case Large Quantities of Material are Released or Spilled: Use water spray or dilute and/or wash away spills to avoid exposure and to protect persons working to stop/repair leak.

SECTION VII - HANDLING AND STORAGE
Precautions To Be Taken in Handling and Storing: Handling and storage must be well ventilated, cool, and dry. Store product away from potential sources of ignition. Fire fighting equipment must be available at all times.
Other Precautions: Keep away from heat/sparks and open flame..

SECTION VIII - EXPOSURE CONTROLS, PERSONAL PROTECTION
Respiratory Protection (Specify Type): None required with normal use.
Ventilation General
Eye Protection: None required with normal use.
<i>Manufacturing Setting:</i> For splash protection, use chemical goggles. Eye wash fountain is desirable.
Protective Gloves: None required with normal use.
Other Protective Equipment: None required with normal use.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES	
Boiling Point °F: N/A	Specific Gravity (H₂O=1): 1.030-1.045
Vapor Pressure (mm Hg): N/A	Percent Volatile by Volume (%): N/A
Vapor Density (Air=1): N/A	Evaporation Rate (nBuOAc=1): N/A
Coefficient of Water/Oil Distribution: N/A	Freezing Point: N/A
Appearance and Odor: Clear liquid	pH (100%): 13
Product is perfumed.	Solubility in Water: Completely
	Reserve Alkalinity: N/A

SECTION X - STABILITY AND REACTIVITY

Possible Hazardous Reactions/Conditions/By Products: None known

Conditions to Avoid: None

Materials to Avoid: Do not mix with other products, especially toilet bowl cleaners, acidic cleaners or products that contain ammonia.

Hazardous Decomposition Products: None known

Other Recommendations: None

Stability: Stable

Hazardous Polymerization: Will not occur

SECTION XI - TOXICOLOGICAL INFORMATION

LD50 (rats oral): >6.5 g/kg

Comet Cleaner with Bleach has a relatively low order of toxicity. It may be irritating, but it is not expected to be corrosive. It is expected to be emetic.

SECTION XII - ECOLOGICAL INFORMATION

No environmental concerns.

SECTION XIII - DISPOSAL CONSIDERATIONS

Waste Disposal Method: Do not landfill. Small quantities may be disposed of via sewer. DISPOSAL IS TO BE PERFORMED IN COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION XIV - TRANSPORT INFORMATION

DOT Classification: Comet Cleaner with Bleach is not DOT hazardous in packages as sold. Bulk product shipments are classified as Class 9 Hazardous Substance with a shipping name of Environmentally hazardous substance, liquid n.o.s.

SECTION XV - ADDITIONAL REGULATORY INFORMATION

All components are listed on the US TSCA Inventory.

No components of Comet Cleaner with Bleach are subject to California Proposition 65.

EPA CERCLA TITLE III

<u>Chemical Name</u>	<u>CERCLA304 RQ (LBS)</u>	<u>311/312</u>	<u>313</u>
Sodium hypochlorite	100	no	no
Sodium hydroxide	1000	no	no

All ingredients are CEPA approved for import to Canada by Procter & Gamble. This product has been classified with Hazard Criteria of the Canadian Control Products Regulation (CPR) and this MSDS contains all information required by the Canadian Products Regulation.

SECTION XVI - OTHER INFORMATION

*N/A. - Not Applicable

*N/K. - Not Known

The submission of this MSDS may be required by law, but this is not an assertion that the substance is hazardous when used in accordance with proper safety practices and normal handling procedures. Data supplied is for use only in connection with occupational safety and health.

The information contained herein has been compiled from sources considered by Procter & Gamble to be dependable and is accurate to the best of the Company's knowledge. The information relates to the specific material designated herein, and does not relate to the use in combination with any other material or any other process. Procter & Gamble assumed no responsibility for injury to the recipient or third persons, for any damage to any property resulting from misuse of the controlled product.

**MATERIAL SAFETY DATA SHEETS
RELEVANT TO CONSTRUCTION INDUSTRY**

MATERIAL SAFETY DATA SHEET

A8W10053
10 00

DATE OF PREPARATION
Dec 20, 2010

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER

A8W10053

PRODUCT NAME

A-100® Exterior Gloss Latex Paint, Deep Base

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300

*for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
0.2	14464-46-1	Cristobalite	ACGIH TLV	0.025 mg/m3 as Resp. Dust
			OSHA PEL	0.05 mg/m3 as Resp. Dust
1	14807-96-6	Talc	ACGIH TLV	2 mg/m3 as Resp. Dust
			OSHA PEL	2 mg/m3 as Resp. Dust
6	13463-67-7	Titanium Dioxide	ACGIH TLV	10 mg/m3 as Dust
			OSHA PEL	10 mg/m3 Total Dust
			OSHA PEL	5 mg/m3 Respirable Fraction

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE

EYES: Irritation.

SKIN: Prolonged or repeated exposure may cause irritation.

INHALATION: Irritation of the upper respiratory system.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

HMIS Codes

Health	1*
Flammability	0
Reactivity	0

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.

SKIN: Wash affected area thoroughly with soap and water.

INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
Not Applicable	N.A.	N.A.	Not Applicable
Carbon Dioxide, Dry Chemical, Alcohol Foam			EXTINGUISHING MEDIA

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE**STORAGE CATEGORY**

Not Applicable

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally.

Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION**PRECAUTIONS TO BE TAKEN IN USE**

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m³ (total dust), 3 mg/m³ (respirable fraction), OSHA PEL 15 mg/m³ (total dust), 5 mg/m³ (respirable fraction).

Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in US) or contact your local health authority.

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits.

Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

Required for long or repeated contact.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	9.20 lb/gal	1102 g/l
SPECIFIC GRAVITY	1.11	
BOILING POINT	212 - 213 °F	100 - 100 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	62%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	N.A.	
pH	9.3	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

0.21 lb/gal 25 g/l Less Water and Federally Exempt Solvents

0.08 lb/gal 10 g/l Emitted VOC

VOLATILE ORGANIC COMPOUNDS (VOC - As Applied)

<0.41 lb/gal <50 g/l Less Water and Federally Exempt Solvents

SECTION 10 — STABILITY AND REACTIVITY**STABILITY — Stable****CONDITIONS TO AVOID**

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION**CHRONIC HEALTH HAZARDS**

Crystalline Silica (Quartz, Cristobalite) is listed by IARC and NTP. Long term exposure to high levels of silica dust, which can occur only when sanding or abrading the dry film, may cause lung damage (silicosis) and possibly cancer.

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

TOXICOLOGY DATA

CAS No.	Ingredient Name			
14464-46-1	Cristobalite	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
14807-96-6	Talc	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
13463-67-7	Titanium Dioxide	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL INFORMATION**

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS**WASTE DISPOSAL METHOD**

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION**US Ground (DOT)**

Not Regulated for Transportation.

Canada (TDG)

Not Regulated for Transportation.

IMO

Not Regulated for Transportation.

SECTION 15 — REGULATORY INFORMATION**SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION**

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
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No ingredients in this product are subject to SARA 313 (40 CFR 372.65C) Supplier Notification.

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

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

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

MATERIAL SAFETY DATA SHEET

1110A
13 00

DATE OF PREPARATION
Dec 15, 2010

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER

1110A

PRODUCT NAME

POWERHOUSE™ 1100A Siliconized Acrylic Latex Sealant - 60 Year, Tan

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
*for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
1	107-21-1	Ethylene Glycol		
		ACGIH TLV	100 MG/M3 CEILING (aerosol)	0.12 mm
		OSHA PEL	50 PPM CEILING	
50	471-34-1	Calcium Carbonate		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	15 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
1	13463-67-7	Titanium Dioxide		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE

EYES: Irritation.

SKIN: Prolonged or repeated exposure may cause irritation.

INHALATION: Irritation of the upper respiratory system.

In a confined area vapors in high concentration may cause headache, nausea or dizziness.

Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

HMIS Codes

Health	2*
Flammability	0
Reactivity	0

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.

SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and laundry before re-use.

INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
Not Applicable	N.A.	N.A.	Not Applicable

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Alcohol Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

Not Applicable

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally.

Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m³ (total dust), 3 mg/m³ (respirable fraction), OSHA PEL 15 mg/m³ (total dust), 5 mg/m³ (respirable fraction).

Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in US) or contact your local health authority.

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits.

Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	12.72 lb/gal	1523 g/l
SPECIFIC GRAVITY	1.53	
BOILING POINT	212 - 388 °F	100 - 197 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	29%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	N.A.	
pH	8.0	
VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)		
	0.21 lb/gal	25 g/l
	0.15 lb/gal	18 g/l
		Less Water and Federally Exempt Solvents Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

Ethylene Glycol is considered an animal teratogen. It has been shown to cause birth defects in rats and mice at high doses when given in drinking water or by gavage. There is no evidence to indicate it causes birth defects in humans.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
107-21-1	Ethylene Glycol	LC50 RAT	4HR	Not Available
		LD50 RAT		4700 mg/kg
471-34-1	Calcium Carbonate	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
13463-67-7	Titanium Dioxide	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

US Ground (DOT)

Not Regulated for Transportation.

Canada (TDG)

Not Regulated for Transportation.

IMO

Not Regulated for Transportation.

SECTION 15 — REGULATORY INFORMATION**SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION**

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
107-21-1	Ethylene Glycol	1	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

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

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

**MATERIAL SAFETY DATA SHEETS
RELEVANT TO LANDSCAPING INDUSTRY**

MATERIAL SAFETY DATA SHEET

Date-Issued: 11/20/2000
MSDS Ref. No: 100052
Date-Revised: 11/29/2000
Revision No: New MSDS

Miracle-Gro® Liquid All Purpose Plant Food 8-7-6

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Miracle-Gro® Liquid All Purpose Plant Food 8-7-6
PRODUCT DESCRIPTION: Mixture

MANUFACTURER

The Scotts Company
 Hyponex - Miracle Gro - Scotts Sierra
 14111 Scottslawn Road
 Marysville, OH 43041

24 HR. EMERGENCY TELEPHONE NUMBERS

CHEMTREC (U.S.): (800) 424-9300
International: 1-703-527-3887
Emergency Phone: 1-937-644-0011

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>CAS#</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Urea	57-13-6	None	None
Ammonium Phosphate	7722-76-1	None	None
Potassium Nitrate	7757-79-1	None	None
Potassium Phosphate	7778-77-0	None	None
Iron EDTA	15708-41-5	None	None

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE:Light green liquid.

IMMEDIATE CONCERNS:High dust concentrations may cause mild upper respiratory tract irritation with coughing and nasal discharge. Eye or skin contact may cause mild, transient irritation.

POTENTIAL HEALTH EFFECTS

EYES:May cause slight, temporary irritation.

SKIN:May cause mild irritation.

INGESTION:May cause nausea, vomiting along with mild irritation to the mouth, throat, esophagus and stomach.

INHALATION:High dust concentrations may cause mild upper respiratory tract irritation with coughing and nasal discharge.

ROUTES OF ENTRY:Ingestion, skin, inhalation, and eyes.

4. FIRST AID MEASURES

EYES:If in eyes, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

SKIN:If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

INGESTION:If swallowed, call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce

vomiting unless told to by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

INHALATION: Move person to fresh air. Call a poison control center or doctor for further treatment advice. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth. Call a poison control center or doctor for further treatment advice.

NOTES TO PHYSICIAN: There are limited data regarding this product. Exposure to this product can occur by eye and skin contact, ingestion, or inhalation of dusts. Eye contact may cause slight, temporary irritation. Skin contact may cause mild irritation. Ingestion may cause nausea, vomiting along with mild irritation to the mouth, throat, esophagus and stomach. High dust concentrations may cause mild respiratory tract irritation with coughing and nasal discharge.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: Non-Combustible

EXTINGUISHING MEDIA: Water spray, carbon dioxide, fine earth, dry chemical, or sand. Use extinguishing media appropriate for the surrounding fire.

EXPLOSION HAZARDS: Keep away from heat, sparks, or flames. Flood with water to cool containers.

FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, nitrogen oxides (NO², NO_x), potassium and potassium containing compounds, ammonia, cyanuric acid, cyanic acid, and phosphorus and phosphorus containing compounds (e.g. phosphine).

6. ACCIDENTAL RELEASE MEASURES

GENERAL PROCEDURES: Extinguish all ignition sources. Flush area with water. Do not attempt to clean-up spills without appropriate protective equipment. Large spills could possibly

affect vegetation or cause illness to animals. Prevent large quantities from contacting vegetation or waterways. Keep animals away from large spills.

7. HANDLING AND STORAGE

GENERAL PROCEDURES:Rinse all equipment after use. Collect all rinse water and apply to appropriate lawn/garden areas.

HANDLING:

Wash hands with soap and water after handling product. Follow specific use instructions supplied with product.

STORAGE:

Store in cool, dry area in closed container or package. Keep containers closed at all times. Do not reuse containers. Store away from incompatible materials. Use with proper personal protective equipment. **KEEP OUT OF REACH OF CHILDREN.**

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:If industrial hygiene surveys show that exposures exceed TLV's or other exposure limits, use a combination of local exhaust and general dilution/ventilation to control exposures.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE:Safety glasses with side shields are recommended.

SKIN:Protective gloves recommended. Contact glove manufacturer for more information.

RESPIRATORY:If concentrations are below established limits, no respiratory protection is necessary. If concentrations exceed the limits, NIOSH approved respiratory protection may be necessary. Seek professional advice prior to respirator selection or use.

Follow OSHA respiratory regulations (29 CFR 1910.134). Use a positive pressure air supplied respirator if there is a potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

OTHER USE PRECAUTIONS: Eyewash and deluge shower recommended.

COMMENTS: The ACGIH Threshold Limit Values (TLV) for nuisance (inert) dusts containing <1% crystalline silica and no asbestos are: 10 mg/m³ inhalable particulates and 3 mg/m³ respirable particulate. The OSHA TLV is 15 mg/m³ total dust, 5 mg/m³ respirable fraction.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Slight ammonia odor.

APPEARANCE: Light green liquid.

BOILING POINT: 100°C (212°F)

SOLUBILITY IN WATER: 100%

SPECIFIC GRAVITY: 1.20

10. STABILITY AND REACTIVITY

STABLE: YES

HAZARDOUS POLYMERIZATION: NO

CONDITIONS TO AVOID: Excessive heat, contact with strong alkalis, fuels, or other combustible materials, strong oxidizing agents (permanganate, dichromate, chlorine, etc.), reducing agents, sodium nitrite, and many chlorine compounds (e.g. sodium hypochlorite, sodium chlorate, pool chemicals, household bleach and other cleaning products). Active

metals such as aluminum and magnesium.

STABILITY:Stable

POLYMERIZATION:Will not occur

HAZARDOUS DECOMPOSITION PRODUCTS:Carbon monoxide, carbon dioxide, nitrogen oxides (NO², NO_x), potassium and potassium containing compounds, ammonia, cyanuric acid, cyanic acid, and phosphorus and phosphorus containing compounds (e.g. phosphine).

11. TOXICOLOGICAL INFORMATION

CARCINOGENICITY:

IARC:No

NTP:No

OSHA:No

GENERAL COMMENTS:This product contains urea (CAS#57-13-6) and is affirmed as generally recognized as safe (GRAS) in accordance with U.S. FDA, 21 CFR, 184. Exposure can occur by eye or skin contact, ingestion, or inhalation of dusts or mists. Eye contact with an unspecified amount of urea powder has caused reversible corneal opacity along with irritation as a foreign body in the eye with tearing, and blinking. Skin contact with powdered urea is not expected to cause irritation. Dermal absorption is expected to be minimal (6-11%). Ingestion is expected to cause nausea, vomiting, and possible excitement and convulsions. These high exposure levels are not considered relevant to occupational or normal use exposure situations. The rat-oral LD50 for urea is 8471 mg/kg. All materials contained in this product are considered to have low toxicity by the expected routes of exposure.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Prevent large quantities from contacting vegetation or waterways. Keep animals away from large spills. This material is highly beneficial to plant life. There are no known adverse effects on aquatic life.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Waste disposal must be in accordance with Federal, state, and local regulations. Be aware that the waste owner has responsibility for final disposal. Regulations may also apply to empty containers, liners or rinsate. Laws may change or be reinterpreted; state and local regulations may be different from Federal regulations. This information applies to materials as manufactured; contamination or processing may change waste characteristics and requirements.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: This product is not DOT regulated

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES:

**FIRE:NO PRESSURE GENERATING:NO REACTIVITY:NO ACUTE:YES
CHRONIC:NO**

PROPOSITION 65 STATEMENT: None of the indicated components of this product are listed on the State of California's Safe Drinking Water and Toxic Enforcement

Act of 1986 (Proposition 65) list of chemicals known to cause reproductive toxicity or cancer.

16. OTHER INFORMATION

REVISION SUMMARY

New MSDS

NFPA CODES

HEALTH:1 FIRE:0 REACTIVITY:0

HMIS CODES

HEALTH:1 FIRE:0 REACTIVITY:0

MANUFACTURER DISCLAIMER:The information contained herein is, to the best of the Manufacturer's (see Section 1) knowledge and belief, accurate and reliable as of the date of preparation of this document. However, no warranty or guarantee, express or implied, is made as to the accuracy or reliability, and the Manufacturer shall not be liable for any loss or damage arising out of the use thereof. No authorization is given or implied to use any patented invention without a license. In addition, the Manufacturer shall not be liable for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices or from any hazards inherent in the nature of the product.

Roundup Weed & Grass Killer1 Ready-To-Use MSDS # 7070

MATERIAL SAFETY DATA SHEET

DATE PREPARED: 10/31/2000

MSDS No: 7070

Roundup Weed & Grass Killer1 Ready-To-Use

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Roundup Weed & Grass Killer1 Ready-To-Use

PRODUCT DESCRIPTION: Herbicide

MANUFACTURER

Monsanto Company
Lawn & Garden Products
P.O. Box 1750
Columbus, OH 43216

24 HR. EMERGENCY TELEPHONE NUMBERS

Emergency Phone: 1-800-225-2883

EPA REG. NO.: 71995-23 **PN:** 7037

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>Wt.%</u>	<u>CAS#</u>
Glyphosate, isopropylamine salt	1.92	38641-94-0

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Yellow or off-white hazy liquid.

IMMEDIATE CONCERNS: CAUSES EYE IRRITATION

AVOID CONTACT WITH EYES OR CLOTHING

WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING

KEEP OUT OF REACH OF CHILDREN

POTENTIAL HEALTH EFFECTS

EYES: This substance causes moderate eye irritation as indicated by possible discomfort, tearing, swelling, redness, and blurred vision. See Toxicological Information, section 11.

SKIN: This substance is not expected to cause skin irritation. See Toxicological Information, section 11.

INGESTION: If swallowed, this product may cause gastrointestinal tract irritation. See Toxicological Information, section 11.

INHALATION: If inhaled, this substance is considered practically non-toxic to internal organs. This substance may be irritating if inhaled. See Toxicological Information, section 11.

COMMENTS HEALTH: Inhalation and skin contact are expected to be the primary routes of occupational exposure to glyphosate. Occupational exposure to this material has not been reported to cause significant adverse health effects. However, swallowing of a similar, but more concentrated formulation, has been reported to produce gastrointestinal discomfort, nausea, vomiting and diarrhea.

4. FIRST AID MEASURES

EYES: Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. Call a physician if irritation persists.

SKIN: No first aid procedures are required. As a precaution, wash skin thoroughly with soap and water. Remove and wash contaminated clothing.

INGESTION: If swallowed, immediately telephone a poison control center, emergency treatment center or a physician for advice. **DO NOT** make person vomit unless directed to do so by medical personnel. If medical advice cannot be obtained, then immediately take person and product container, with label, to an emergency treatment center.

INHALATION: Since this material is not expected to be an immediate inhalation problem, no first aid procedures are required. If respiratory discomfort or irritation occurs, move the person to fresh air. See a doctor if discomfort or irritation continues.

ADDITIONAL INFORMATION: Medical Information: Call day or night, 1-800-225-2883

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: >212°F TAG CC

EXTINGUISHING MEDIA: Water spray, foam, CO₂, dry chemical or any class B extinguishing agent.

FIRE FIGHTING PROCEDURES: For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment. This may include self-contained breathing apparatus to protect against the hazardous effects of normal products of combustion or oxygen deficiency. Equipment should be thoroughly cleaned after use. Read the entire document.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Soak up spilled material with paper towels and discard in trash.

LARGE SPILL: Liquid spills on floor or other impervious surfaces should be contained or diked, and should be absorbed with attapulgate, bentonite or other absorbent clays. Collect contaminated absorbent, place in plastic-lined metal drum and dispose of in accordance with instructions provided under Section 13. "DISPOSAL". Thoroughly scrub floor or other impervious surface with a strong industrial type detergent solution and rinse with water.

For liquid spills that soak into the ground, contact the applicable Federal, State and or County Health Dept. for disposal recommendations. If disposal is required then refer to Section 13 "DISPOSAL" for instructions.

Leaking containers should be separated from non-leakers and either the container or its contents transferred to a drum or other non-leaking container and disposed of in accordance with instructions provided under Section 13 "Disposal". Any recovered spilled liquid should be similarly collected and disposed of.

Do not contaminate water, foodstuffs or feed by storage or disposal.

GENERAL PROCEDURES: Observe all protection and safety precautions when cleaning up spills -- see Section 8. "EXPOSURE CONTROLS/PERSONAL PROTECTION". For help with any spill, leak, fire or exposure involving this material, call day or night (800) 225-2883.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Keep pesticide in original container. For containers larger than 24 oz.: Place sprayer nozzle under handle on container so the sprayer is not below level of contents of container to prevent leakage. Store in a secure, preferably locked, storage area. Protect container from freezing.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: No special ventilation is necessary.

PERSONAL PROTECTION

EYES AND FACE: For application of product in accordance with label instructions, no special eye protection is needed.

Where there is significant potential for eye contact, wear chemical goggles and have eye flushing equipment available.

SKIN: Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

RESPIRATORY: Avoid breathing vapor or mist.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

APPEARANCE: Clear liquid

pH: ~7.1 to 7.5

SOLUBILITY IN WATER: Soluble

SPECIFIC GRAVITY: 1.01 Water = 1.00 at 20°C

VISCOSITY: Same as water.

10. STABILITY AND REACTIVITY

STABLE: YES

HAZARDOUS POLYMERIZATION: NO

HAZARDOUS DECOMPOSITION: None.

11. TOXICOLOGICAL INFORMATION

ACUTE

EYES: rabbit - moderately irritating, irritation cleared by test day 7.
EPA FIFRA toxicity category - III.

DERMAL LD₅₀: Practically non-toxic, (Rat) LD₅₀ >5.0 gm/Kg; EPA FIFRA toxicity category - IV. Nonirritating to skin (Rabbit); EPA FIFRA toxicity category - IV.

ORAL LD₅₀: Rat = >5.0 g/kg.
EPA FIFRA toxicity category - IV.

INHALATION LC₅₀: Practically non-toxic, (Rat 4-hr LC₅₀ >10mg/L). EPA FIFRA toxicity category - IV.

SENSITIZATION: Guinea pig - no evidence of allergic skin reactions.

CHRONIC: Data from glyphosate laboratory toxicology studies were conducted with a formulation comprised of 62% isopropylamine salt of glyphosate (MON 0139).

Rabbits - 3 week dermal: Repeated daily primarily resulted in slight skin irritation.

Dogs - 6 month feeding: Only slight body weight changes noted.

Rats - 90 day feeding: No treatment related effects.

Mice - 90 day feeding: Decreased weight gains at the high dose level group animals.

CARCINOGENICITY:

CARCINOGENICITY COMMENTS: GLYPHOSATE: Glyphosate is not considered to be a carcinogen. Glyphosate did not produce tumors in any of the long-term toxicology studies. EPA has classified glyphosate in category "E" (Evidence of noncarcinogenicity for humans).

Mice: 2-year feeding study. Reduced body weight gain and effects on liver tissues

were observed at high dose levels.

Rats: 2-year feeding study. Reduced body weight gain and eye changes were observed at the high dose level in one study, while no treatment related effects occurred in a second study conducted at lower dose levels.

Dogs: No adverse effects were observed in feeding studies with dogs.

TERATOGENICITY: GLYPHOSATE: No evidence of teratogenic effects. Results of rat and rabbit teratology studies indicate that no birth defects were noted. This included dose levels of glyphosate that were maternally toxic.

REPRODUCTIVE TOXIN: GLYPHOSATE: No evidence of adverse reproductive effects. Glyphosate was fed continuously to rats at very high dose levels for 2 successive generations. Toxicity was reported in offspring from the high dose, a level which also produced adverse effects on the mothers. In a 3-generation study conducted at lower dose levels, no effects were seen on the ability of male or female rats to reproduce.

MUTAGENICITY: GLYPHOSATE: Glyphosate has not produced any genetic changes in various mutagenicity tests involving animals and animal or bacterial cells.

COMMENTS: See Section 16 for definition of EPA FIFRA toxicity categories.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Monsanto has not conducted environmental toxicity studies with this product. Available data for a similar formulation are summarized below:

Aquatic Invertebrates:48-hr EC50 Daphnia magna:1,634 mg/L;Practically Nontoxic

Warmwater Fish:96-hr LC50 Silver orfe:491 mg/L;Practically Nontoxic

Coldwater Fish:96-hr LC50 Rainbow trout:322 mg/L;Practically Nontoxic

Algal Species:72-hr EC50 Selenastrum:15 mg/L;Slightly Toxic

Studies with the active ingredient indicate that this product would be practically nontoxic to avian species and honeybees. The results of degradation and bioconcentration studies with the active ingredient in this product indicate that it is rapidly adsorbed to soil, readily biodegrades in soil and water, and does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

FOR LARGE SPILLS: Material collected that cannot be reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, State or local procedures.

PRODUCT DISPOSAL: Securely wrap partially filled or empty container in several layers of newspaper and discard in trash. Never pour product down any drain.

EMPTY CONTAINER: Do not reuse container except for refill in accordance with product label directions. If not used for refill, rinse thoroughly before discarding in trash.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Not Regulated

PRIMARY HAZARD CLASS/DIVISION: None

UN/NA NUMBER: None

PACKING GROUP: No

U.S. SURFACE FREIGHT CLASS: Weed killing compounds, NOBIN.

AIR (ICAO/IATA)

PROPER SHIPPING NAME: Not Regulated

SPECIAL SHIPPING NOTES: The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

PRODUCT CLASSIFICATION UNDER SECTION 311 OF SARA				
ACUTE: YES	CHRONIC: NO	FIRE: NO	REACTIVITY: NO	PRESSURE GENERATING: NO

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: All non FIFRA regulated components are on the US EPA's TSCA Inventory List.

16. OTHER INFORMATION**HMIS CODES**

FIRE: 0 HEALTH: 1 REACTIVITY: 0 PROTECTION: -

NFPA CODES

FIRE: 0 HEALTH: 1 REACTIVITY: 0 SPECIAL: -

APPROVAL DATE: 10/31/2000

REVISION SUMMARY New MSDS

MANUFACTURER SUPPLEMENTAL NOTES: EPA FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) Toxicity Categories: The EPA toxicity categories are based on the results of the acute toxicology studies. The toxicology findings are compared to the FIFRA criteria to determine the product label signal word, precautionary and first aid statements. The EPA FIFRA toxicity category summary:

EPA FIFRA Product Label Toxicity Rating
Toxicity Category Signal Word

I DANGER Most toxic and irritating
II WARNING
III CAUTION
IV CAUTION Least toxic and irritating

COMMENTS: For additional information concerning this product, call the Helpline at 800-225-2883.

MANUFACTURER DISCLAIMER: This Material Safety Data Sheet (MSDS) contains health, safety and environmental information for you and your employees. It does not replace the precautionary language, use directions, or the storage and disposal information found on the product label. Information contained in this MSDS will help you to prepare for emergency response and to meet community right-to-know, emergency response and reporting requirements under SARA Title III and many other laws. Emergency response agencies and health care providers will also find this additional information useful.

Use of this product is regulated by the U.S. Environmental Protection Agency (EPA) through the approved label copy. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Monsanto Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determinations as to its suitability for their purposes prior to use. In no event will Monsanto Company be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

http://www.roundup.com/product_info/msds/msds7070rtu1.htm

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MATERIAL SAFETY DATA SHEETS
RELEVANT TO POULTRY PROCESSING AND MEATPACKING INDUSTRY



MATERIAL SAFETY DATA SHEET

PRODUCT NAME: AMMONIA

1. Chemical Product and Company Identification

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

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

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

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

PRODUCT NAME: AMMONIA
CHEMICAL NAME: Ammonia
COMMON NAMES/SYNONYMS: Ammonia Anhydrous; Anhydrous Ammonia
TDG (Canada) CLASSIFICATION: 2.4 (9.2)
WHMIS CLASSIFICATION: A, E

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

2. Composition, Information on Ingredients

INGREDIENT	% VOLUME	PEL-OSHA ¹	TLV-ACGIH ²	LD ₅₀ or LC ₅₀ Route/Species
Ammonia FORMULA: NH ₃ CAS: 7664-41-7 RTECS #: BO0875000	100.0	50 ppm TWA	25 ppm TWA 35 ppm STEL	LC ₅₀ 2000 ppm/4H

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

Irritating or corrosive to exposed tissues. Inhalation of vapors may result in pulmonary edema and chemical pneumonitis. Slightly flammable.

PRODUCT NAME: AMMONIA

ROUTE OF ENTRY:

Skin Contact Yes	Skin Absorption No	Eye Contact Yes	Inhalation Yes	Ingestion No
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HEALTH EFFECTS:

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

Carcinogenicity: -- NTP: No IARC: No OSHA: No

EYE EFFECTS:

Mild concentrations of product will cause conjunctivitis. Contact with higher concentrations of product will cause swelling of the eyes and lesions with a possible loss of vision.

SKIN EFFECTS:

Mild concentrations of product will cause dermatitis or conjunctivitis. Contact with higher concentrations of product will cause caustic-like dermal burns and inflammation. Toxic level exposure may cause skin lesions resulting in early necrosis and scarring.

INGESTION EFFECTS:

Since product is a gas at room temperature, ingestion is unlikely.

INHALATION EFFECTS:

Corrosive and irritating to the upper respiratory system and all mucous type tissue. Depending on the concentration inhaled, it may cause burning sensations, coughing, wheezing, shortness of breath, headache, nausea, with eventual collapse.

Inhalation of excessive amounts affects the upper airway (larynx and bronchi) by causing caustic-like burning resulting in edema and chemical pneumonitis. If it enters the deep lung, pulmonary edema will result. Pulmonary edema and chemical pneumonitis are potentially fatal conditions.

NFPA HAZARD CODES

Health: 3
Flammability: 1
Reactivity: 0

HMIS HAZARD CODES

Health: 3
Flammability: 1
Reactivity: 0

RATINGS SYSTEM

0 = No Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

4. First Aid Measures

EYES:

Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes. PERSONS WITH POTENTIAL EXPOSURE TO AMMONIA SHOULD NOT WEAR CONTACT LENSES.

SKIN:

Remove contaminated clothing as rapidly as possible. Flush affected area with copious quantities of water. In cases of frostbite or cryogenic "burns" flush area with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or deep tissue freezing.

INGESTION:

Not specified. Seek immediate medical attention.

INHALATION

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. 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. Unconscious persons should be moved to an uncontaminated area, given mouth-to-mouth resuscitation and supplemental oxygen. Keep victim warm and quiet. Assure that mucus or vomited material does not obstruct the airway by positional drainage.

5. Fire Fighting Measures

Conditions of Flammability: Nonflammable		
Flash point: None	Method: Not Applicable	Autoignition: Temperature: 1274 °F (690 °C)
LEL(%): 16		UEL(%): 25
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

FIRE AND EXPLOSION HAZARDS:

The minimum ignition energy for ammonia is very high. It is approximately 500 times greater than the energy required for igniting hydrocarbons and 1000 to 10,000 times greater than that required for hydrogen.

EXTINGUISHING MEDIA:

Water fog. Use media suitable for surrounding fire.

FIRE FIGHTING INSTRUCTIONS:

If possible, stop the flow of gas. Since ammonia is soluble in water, it is the best extinguishing media--not only in extinguishing the fire, but also absorbing the escaped ammonia gas. Use water spray to cool surrounding containers.

PRODUCT NAME: AMMONIA

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:

Class 1, Group D.

Earth-ground and bond all lines and equipment associated with the ammonia system. Electrical equipment should be non-sparking or explosion proof.

Gaseous or liquid anhydrous ammonia corrodes certain metals at ambient temperatures. The presence of oxygen enhances the corrosion of ordinary or semi-alloy steels. The addition of water inhibits this enhancement. Keep anhydrous ammonia systems scrupulously dry.

Use only in well-ventilated areas. 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 regulator when connecting cylinder to lower pressure (<500 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 to trap in the discharge line to prevent hazardous back flow into the cylinder.

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 125°F (52°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 from being stored for excessive periods of time.

For additional handling recommendations, consult Compressed Gas Association Pamphlets P-1 and G2.

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 LIMITS¹:

INGREDIENT	% VOLUME	PEL-OSHA ²	TLV-ACGIH ³	LD ₅₀ or LC ₅₀ Route/Species
Ammonia FORMULA: NH ₃ CAS: 7664-41-7 RTECS #: BO0875000	100.0	50 ppm TWA	25 ppm TWA 35 ppm STEL	LC ₅₀ 2000 ppm/4H

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 ventilation to reduce concentrations to within current exposure limits. A laboratory type hood is suitable for handling small or limited quantities.

MSDS: G-11

Revised: 7/1/96

PRODUCT NAME: AMMONIA

EYE/FACE PROTECTION:

Gas tight chemical goggles or full-face piece respirator.

SKIN PROTECTION:

Protective gloves made of any suitable material.

RESPIRATORY PROTECTION:

Level C respiratory protection with full face piece or self-contained breathing apparatus should be available for emergency use. Air purifying respirators must be equipped with suitable cartridges. Do not exceed maximum use concentrations. Do not use air purifying respirators in an oxygen deficient/immediately dangerous to life and health (IDLH) atmosphere. Consult manufacturers instructions before use.

OTHER/GENERAL PROTECTION:

Safety shoes, safety shower, eyewash "fountain".

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure at 70°F	: 94	psia
Vapor density at 60°F (Air = 1)	: 0.62	
Evaporation point	: Not Available	
Boiling point	: -28	°F
	: -33.3	°C
Freezing point	: 107.9	°F
	: -77.7	°C
pH	: Not Available	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H2O)	: Very soluble	
Odor threshold	: Not Available	
Odor and appearance	: A colorless gas with a pungent odor.	

10. Stability and Reactivity

STABILITY:

Unstable

CONDITIONS TO AVOID (STABILITY):

None

INCOMPATIBLE MATERIALS:

Reacts vigorously with fluorine, chlorine, HCl, HBr, nitrosyl chloride, chromyl chloride, nitrogen dioxide, trioxxygen difluoride, and nitrogen trichloride.

PRODUCT NAME: AMMONIA

HAZARDOUS DECOMPOSITION PRODUCTS:

Hydrogen at very high temperatures: 1544°F (840°C).

CONDITIONS TO AVOID (POLYMERIZATION):

None

HAZARDOUS POLYMERIZATION:

Will not occur.

11. Toxicological Information

MUTAGENIC:

Genetic mutations observed in bacterial and mammalian test systems.

OTHER:

Toxic effects to the respiratory system, senses, liver, kidneys and bladder observed in mammalian species from prolonged inhalation exposures at above 100 ppm.

12. Ecological Information

OTHER ENVIRONMENTAL INFORMATION:

The reportable quantity is the minimum quantity of a material that when released, requires reporting to the appropriate Federal, State and local officials. Notification requirements are found under CERCLA Section 103(a). Initial notification may be by telephone, radio, or in person. A written follow-up notice is also required.

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:	Ammonia, Anhydrous, liquefied	Ammonia, Anhydrous, liquefied
HAZARD CLASS:	2.2	2.4 (9.2)
IDENTIFICATION NUMBER:	UN 1005	UN 1005
SHIPPING LABEL:	NONFLAMMABLE GAS	CORROSIVE GAS

Additional Marking Requirement: "Inhalation Hazard"

If net weight of product \geq 100 pounds, the container must be also marked with the letters "RQ".

Additional Shipping Paper Description Requirement: "Poison Inhalation Hazard, Zone A"

If net weight of product \geq 100 pounds, the shipping papers must be also marked with the letters "RQ".

15. Regulatory Information

Ammonia is listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 10,000 pounds.

MSDS: G-11

Revised: 7/1/96

PRODUCT NAME: AMMONIA

SARA TITLE III NOTIFICATIONS AND INFORMATION

Ammonia is listed as an extremely hazardous substance (EHS) subject to state and local reporting under Section 304 of SARA Title III (EPCRA) with a reportable quantity (RQ) of 100 pounds.

The presence of Ammonia in quantities in excess of the threshold planning quantity (TPQ) of 500 pounds requires certain emergency planning activities to be conducted.

SARA TITLE III - HAZARD CLASSES:

Acute Health Hazard
Sudden Release of Pressure Hazard
Reactivity Hazard

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

CAS NUMBER	INGREDIENT NAME	PERCENT BY VOLUME
7664-41-7	AMMONIA	100.0

This information must be included on all MSDS that are copied and distributed for this material.

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).

MATERIAL SAFETY DATA SHEET

ISSUED: 10/23/97

CHLORINE

REVISED: 11/01/99

SECTION I - PRODUCT IDENTIFICATION

Westlake CA&O
2468 Industrial Parkway
P O Box 527
Calvert City, KY 42029

Telephone No.: (270) 395-4151
Transportation Emergency No.:
CHEMTREC: (800) 424-9300
Medical Emergency No.:
POISON CENTER: (216) 379-8562

Chemical Family: Halogen

Chemical Name/Synonyms: Chlorine

Trade Mark: None

Formula: Cl₂; (Cl-Cl)

C.A.S. Registry No.: 7782-50-5

TSCA Inventory Status: All ingredients are listed on the USEPA's TSCA inventory

Canadian Domestic Substances List Status: All ingredients have been nominated or are eligible for inclusion.

Workplace Hazardous Materials Information System (WHMIS) Classification: C,E

Product Use: Various Applications

SARA 313 Information: This product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

SECTION II - HAZARDOUS INGREDIENTS

Hazard Summary Statement: WARNING! HIGHLY TOXIC. CORROSIVE. May be fatal if inhaled. Strong oxidizer. Most combustibles will burn in chlorine as they do in oxygen. Read entire Material Safety Data Sheet (MSDS).

<u>Material</u>	<u>C.A.S. Number</u>	<u>Amount in Product</u>	<u>ACGIH TLV-TWA</u>	<u>OSHA PEL-TWA</u>
Chlorine ^{1,2,4,5,6}	7782-50-5	> 99.5%	0.5 ppm 1 ppm short term exposure limit (STEL)	1 ppm - ceiling

N.A. - Not Applicable

N.E. - Not Established

Legislative Footnotes

¹Ingredient listed on SARA Section 313 List of Toxic Chemicals.

²Ingredient listed on the *Pennsylvania Hazardous Substances List*.

³Ingredient listed on the California listing of *Chemicals Known to the State to Cause Cancer or Reproductive Toxicity*.

⁴Ingredient listed on the *Massachusetts Substance List*.

⁵*Workplace Hazardous Materials Information System* ingredient found on the Ingredient Disclosure List - Canada.

⁶Ingredient listed on the *New Jersey Right to Know Hazardous Substance List*.

Notes:

TLV-TWA - Threshold Limit Value - Time Weighted Average guideline for concentration of the chemical substance in the ambient workplace air. (The skin notation calls attention to the skin as an additional significant route of absorption of the listed chemical.) American Conference of Governmental Industrial Hygienists (ACGIH).

OSHA PEL - OSHA Permissible Exposure Limit, 8-hour TWA. 29 CFR 1910.1000, Transitional Limits column, Table Z-1-A, Table Z-2, and Table Z-3.

SECTION III - PHYSICAL DATA

Appearance: Greenish-yellow gas or amber liquid	Specific Gravity: Dry Gas (2.48 @ 0°C) Liquid (1.47 @ 0/4°C)
Odor: Pungent, suffocating bleach like odor	Melting Point: -101°C (-150°F)
Percent Volatiles: >99.5	Molecular Weight: 70.9
Solubility in Water: Slight	Vapor Pressure: 73 psia @ 50°F
Physical State: Gas (liquid under pressure)	Vapor Density: 2.5 (Air=1)

SECTION IV - FIRE & EXPLOSION HAZARD DATA

Flash Point: Test is not applicable to gases. Not combustible. Chlorine can support combustion and is a serious fire risk.

Flammable Limits in Air: Not Applicable

Note:

Flash Point: The lowest initial temperature of air passing around the specimen at which sufficient combustible gas is evolved to be ignited by a small external pilot flame.

Extinguishing Media: For small fires use dry chemical or carbon dioxide. For large fires use water spray, fog or foam.

Special Firefighting Procedures: Wear full face positive pressure self-contained breathing apparatus (SCBA). Wear full protective gear to prevent all body contact (moisture or water and chlorine can form hydrochloric and hypochlorous acids which are corrosive). Personnel not having suitable protection must leave the area to prevent exposure to toxic gases from the fire. Use water to keep fire-exposed containers cool (if containers are not leaking). Use water spray to direct escaping gas away from workers if it is necessary to stop the flow of gas. In enclosed or poorly ventilated areas, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

Unusual Fire and Explosion Hazards: Chlorine and water can be very corrosive. Corrosion of metal containers can make leaks worse. Although non-flammable, chlorine is a strong oxidizer and will support the burning of most combustible materials. Flammable gases and vapors can form explosive mixtures with chlorine. Chlorine can react violently when in contact with many materials and generate heat with possible flammable or explosive vapors. Chlorine gas is heavier than air and will collect in low-lying areas.

Explosive Characteristics: Containers heated by fire can explode.

SECTION V - Reactivity

Stability: Stable

Hazardous Polymerization: Will not occur.

Hazardous Decomposition Products: Hydrogen chloride may form from chlorine in the presence of water vapor.

CAUTION! Oxidizer. Extremely reactive.

Incompatibility (Materials to Avoid): Chlorine is extremely reactive. Liquid or gaseous chlorine can react violently with many combustible materials and other chemicals, including water. Metal halides, carbon, finely divided metals and sulfides can accelerate the rate of chlorine reactions. Hydrocarbon gases, e.g., methane, acetylene, ethylene or ethane, can react explosively if initiated by sunlight or a catalyst. Liquid or solid hydrocarbons, e.g., natural or synthetic rubbers, naphtha, turpentine, gasoline, fuel gas, lubricating oils, greases or waxes, can react violently. Metals, e.g., finely powdered aluminum, brass, copper, manganese, tin, steel and iron, can react vigorously or explosively with chlorine. Nitrogen compounds, e.g., ammonia and other nitrogen compounds, can react with chlorine to form highly explosive nitrogen trichloride. Non-metals,

e.g., phosphorous, boron, activated carbon and silicon can ignite on contact with gaseous chlorine at room temperature. Certain concentrations of chlorine-hydrogen can explode by spark ignition. Chlorine is strongly corrosive to most metals in the presence of moisture. Copper may burn spontaneously. Chlorine reacts with most metals at high temperatures. Titanium will burn at ambient temperature in the presence of dry chlorine.

SECTION VI - HEALTH HAZARD DATA

Threshold Limit Value: See Section II.

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

Effects of Overexposure:

Acute: Low concentrations of chlorine can cause itching and burning of the eyes, nose, throat and respiratory tract. At high concentrations chlorine is a respiratory poison. Irritant effects become severe and may be accompanied by tearing of the eyes, headache, coughing, choking, chest pain, shortness of breath, dizziness, nausea, vomiting, unconsciousness and death. Bronchitis and accumulation of fluid in the lungs (chemical pneumonia) may occur hours after exposure to high levels. Liquid as well as vapor contact can cause irritation, burns and blisters. Ingestion can cause nausea and severe burns of the mouth, esophagus and stomach.

Chronic: Prolonged or repeated overexposure may result in many or all of the effects reported for acute exposure (including pulmonary function effects).

Emergency and First Aid Procedures:

Inhalation (of process emissions): Take proper precautions to ensure rescuer safety before attempting rescue (wear appropriate protective equipment and utilize the "buddy system"). Remove source of chlorine or move victim to fresh air. If breathing has stopped, trained personnel should immediately begin artificial respiration or, if the heart has stopped, cardiopulmonary resuscitation (CPR). Avoid mouth-to-mouth contact. Oxygen may be beneficial if administered by a person trained in its use, preferably on a physician's advise. Obtain medical attention immediately.

Eye Contact: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 20 minutes while the eyelid(s) are open. Take care not to rinse contaminated water into the non-affected eye. If irritation persists, obtain medical attention immediately.

Skin Contact: As quickly as possible, flush contaminated area with lukewarm, gently running water for at least 20 minutes. Under running water, remove contaminated clothing, shoes, and leather watchbands and belts. If irritation persists, obtain medical attention immediately. Completely decontaminate clothing, shoes and leather goods before re-use, or, discard.

Ingestion: Not an anticipated hazard.

SECTION VII - SPILL & LEAK PROCEDURE

Steps to be taken in case material is released or spilled: Restrict access to the area until completion of the cleanup. Issue a warning: POISON GAS. DO NOT TOUCH SPILLED LIQUID. Do not use water on a chlorine leak (corrosion of the container can occur, increasing the leak). Shut off leak if safe to do so. Wear NIOSH/MSHA-approved, self-contained, full-face, positive pressure respirator and full protective clothing capable of protection from both liquid and gas phases. Persons without suitable respiratory and body protection must leave the area.

The following evacuation guide was developed by the U.S. Department of Transportation (DOT): Spill or leak from a smaller container or small leak from a tank - isolate in all directions 250 feet. Large spill from a tank or from a number of containers - first, isolate 520 feet in all directions; secondly, evacuate in a downwind direction 1.3 miles wide and 2.0 miles long. Keep upwind from leak. Vapors are heavier than air and pockets of chlorine are likely to be trapped in low-lying areas. Use water spray on the chlorine vapor cloud to reduce vapors. Do not flush into public sewer or water systems. Chlorine can be neutralized with caustic soda or soda ash. Alkaline solutions for absorbing chlorine can be prepared as follows:

For 100 pound containers: 125 lbs. of caustic soda and 40 gallons of water

For 2,000 pound containers: 2,500 lbs. of caustic soda and 800 gallons of water

For 100 pound containers: 300 lbs. of soda ash and 100 gallons of water

For 2,000 pound containers: 6,000 lbs. of soda ash and 2,000 gallons of water

CAUTION: Observe appropriate safety precautions for handling alkaline chemicals. Heat will be generated during the neutralization process.

Waste Disposal Method: Due to its inherent properties, hazardous conditions may result if the material is managed improperly. It is recommended that any containerized waste chlorine be managed as hazardous waste in accordance with all applicable federal, state, and local health and environmental laws and regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Effective exhaust ventilation should always be provided to draw fumes or vapors away from workers to prevent routine inhalation. Ventilation should be adequate to maintain the ambient workplace atmosphere below the legislated levels listed in Section II.

Respiratory Protection: Use NIOSH approved acid gas cartridge or canister respirator for routine work purposes when concentrations are above the permissible exposure limits. Use full facepiece respirators when concentrations are irritating to the eyes. A cartridge-type escape respirator should be carried at all times when handling chlorine for escape only in case of a spill or leak. Re-enter area only with NIOSH approved, self-contained breathing apparatus with full facepiece. The respiratory use limitations made by NIOSH or the manufacturer must be observed. Respiratory protection programs must be in accordance with 29 CFR 1910.134.

Eye/Face Protection: Non-ventilated chemical safety goggles or a full face shield.

Skin Protection: Wear impervious gloves, coveralls, boots and/or other resistance protective clothing. Safety shower/eyewash fountain should be readily available in the work area. Some operations may require the use of an impervious full-body encapsulating suit and respiratory protection.

Note: Neoprene, polyvinyl chloride (PVC), Viton, and chlorinated polyethylene show good resistance to chlorine.

Additional: Do not eat, drink or smoke in work areas. Maintain good housekeeping.

SECTION IX - SPECIAL PRECAUTIONS

Material Handling: Do not use near welding operations, flames or hot surfaces. Move cylinders by hand truck or cart designed for that purpose. Do not lift cylinders by their caps. Do not handle cylinders with oily hands. Secure cylinders in place in an upright position at all times. Do not drop cylinders or permit them to strike each other. Leave valve cap on cylinder until cylinder is secured and ready for use. Close all valves when not in actual use. Insure valves on gas cylinders are fully opened when gas is used. Open and shut valves at least once a day while cylinder is in use to avoid valve "freezing". Use smallest possible amounts in designated areas with adequate ventilation. Have emergency equipment for fires, spills and leaks readily available. Wash thoroughly after handling product. Provide a safety shower/eyewash station in handling area. An emergency contingency program should be developed for facilities handling chlorine.

Storage: Store in steel pressure cylinders in a cool, dry area outdoors or in well-ventilated, detached or segregated areas of noncombustible construction. Keep out of direct sunlight and away from heat and ignition sources. Cylinder temperatures should never exceed 51°C (125°F). Isolate from incompatible materials. Store cylinders upright on a level floor secured in position and protected from physical damage. Use corrosion resistant lighting and ventilation systems in the storage area. Keep cylinder valve cover on. Label empty cylinders. Store full cylinders separately from empty cylinders. Avoid storing cylinders for more than six months. Comply with applicable regulations for the storage and handling of compressed gases.

SECTION X - HAZARD CODES

NFPA

(National Fire Protection Association)

Health: 4
Flammability: 0
Reactivity: 0
Special: OXY

HMIS

(Hazardous Materials Identification System)

Health: 3
Flammability: 0
Reactivity: 0
Personal Protection: X*

Key:

0 = Insignificant
1 = Slight
2 = Moderate
3 = High
4 = Extreme

* See MSDS for specified protection

USER'S RESPONSIBILITY

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of the user's operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained within this bulletin should be provided to the user's employees or customers. Westlake CA&O Corporation must rely upon the user to utilize this information to develop appropriate work practice guidelines and employee instructional programs for his or her operation.

DISCLAIMER OF LIABILITY

As the conditions or methods of use are beyond our control, we do not not assume any responsibility and expressly disclaim any liability for any use of this material. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding the accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state and local laws and regulations remains the responsibility of the user.

SHIPPING INFORMATION

IDENTIFICATION - DOMESTIC TRANSPORTATION

Proper Shipping Name (172.101(c)): **Chlorine**
(Technical Name(s)) 172.203(k): **N/A**
Hazard Class 172.101(d): **2.3**
UN/NA# 172.101(e): **UN 1017**
Haz. Substance 171.8: **RQ (Chlorine)**
Reportable Quantity (Appendix A to 172.101): **10 LB**
Inhalation Hazard 172.2a(b): **Zone B, Poison-Inhalation Hazard, Marine Pollutant**
Package Code 172.101(f): **N/A**
Placarded: **Poison Gas**

PACKAGING (Part 173)

- ◆ Packaging Section (172.101(i)) - Col. 8(a): None
Col. 8(b): 173.304
Col. 8(c): 173.314, 173.315

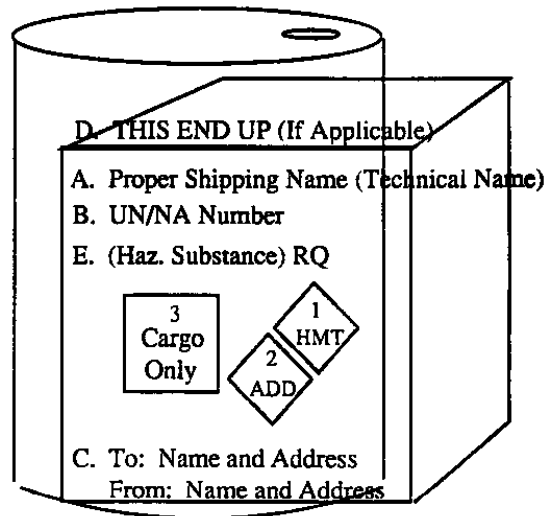
- ◆ General Packaging Section - General 173.24 Hazard Class: **POISON GAS**

MARKING

- A. Proper Shipping Name (172.301(a)) (Technical Name) (172.301(b))
- B. UN/NA Number (172.301(a))
- C. Name & Address (172.301(d))
- D. THIS END UP (172.312(a))
- E. Hazardous Substance RQ (Name) (172.324)
ORM Designation (172.316(a))
Inhalation Hazard (172.313(a))

DOMESTIC LABELING

- 1. HMT LABELS (172.400)
- 2. Additional Subsidiary Hazard (172.402(a)):
8 (Corrosive)



DANGEROUS GOODS DETERMINATION (38th Edition) IATA

- ◆ Air Transport of This Material if Forbidden (Passenger and Cargo)

**MATERIAL SAFETY DATA SHEETS
RELEVANT TO RESTAURANT INDUSTRY**



The Procter & Gamble Company
P&G Household Care
Fabric & Home Care Innovation Center
5299 Spring Grove Avenue
Cincinnati, OH 45217-1087

MATERIAL SAFETY DATA SHEET

MSDS #: **RQ0808066 / RQ0810404**
Supersedes: **RQ0806396 / RQ0808051**

Issue Date: April 2008 / July 2008
Issue Date: April 2008 / May 2008

SECTION I - PRODUCT IDENTIFICATION

Identity: Automatic Dishwashing Detergent Powder **Finished Product**
Brands:
CASCADE PURE RINSE POWDER (Lemon, Baking Soda Fresh, Orchard Splash, Summertime Showers, Orange Scents and Cascade with Extra Bleach Action)
CASCADE COMPLETE POWDER (Fresh Scent, Citrus Breeze & Melon Blossom Scents, Cascade Complete with Bleach Hydroclean Action and Cascade Advanced Powder)
P&G Telephone Number: 800-765-5516 or call Local Poison Control Center or your physician.

SECTION II - HAZARDS IDENTIFICATION

Potential Health Hazards (Acute and Chronic): (See Section 11 for more information)
Ingestion: May cause vomiting if swallowed.
Eye Contact: Contact may cause mild, transient irritation.
Skin Contact: Prolonged/ repeated contact may cause irritation.
Inhalation: Can cause mild respiratory irritation.
Signs and Symptoms of Exposure:
Ingestion: May cause vomiting if swallowed.
Eye Contact: Contact may cause moderate, transient irritation, including redness.
Skin Contact: Contact may cause moderate, transient irritation, including dryness.
Inhalation: Repeated prolonged exposure may cause mild respiratory irritation.
Medical Conditions Generally Known to be Aggravated by Exposure: None known.
Potential Environmental Effects: (See Section 12 for more information)

SECTION III - COMPOSITION AND INGREDIENTS

Ingredients/Chemical Name: Complexed sodium phosphates and sodium carbonate, oxygen bleaching system and enzymes, nonionic wetting agents, sodium silicate, sodium sulfate, perfume and dye.

Under normal consumer use, this product would not constitute a hazardous product under OSHA Hazard Communication. With increased industrial exposure this mixture, when tested as a whole, is considered an inhalation hazard within the meaning of the OSHA Hazard Communication Standard.

Hazardous Ingredients as defined by OSHA, 29 CFR 1910.1200. and/or WHMIS under the HPA:

<u>Chemical Name</u>	<u>Common Name</u>	<u>CAS No.</u>	<u>Composition Range</u>	<u>LD50/LC50</u>
Sodium carbonate	Soda ash	497-19-8	15-40%	1.9 g/kg (rats, oral)
Silicic acid, sodium salt	Sodium silicate	1344-09-8	7-13%	~1.8 g/kg (rats, oral)
Carbonic Acid Disodium Salt, Compound with Hydrogen Peroxide	Sodium Percarbonate	15630-89-4	4-7%	~1 g/kg (rats, oral)

SECTION IV – FIRST AID INFORMATION

First Aid Procedures:

Ingestion: If swallowed, do not induce vomiting. Give a glassful of water or milk and call a poison control centre or physician immediately.

Eye Contact: Flush eyes with water for 15 minutes.

Skin Contact: Rinse exposed area with water.

Inhalation: Leave dusty area.

Note to Physician: (if applicable)

Other: Consumer product package has the following precautionary statement:

Front Panel: CAUTION: HARMFUL IF SWALLOWED. MAY IRRITATE EYES OR SKIN.

Side Panel: CAUTION: Do not get in eyes. Do not get on skin or clothing. KEEP OUT OF REACH OF CHILDREN. FIRST AID TREATMENT: Contains sodium carbonate, sodium silicate and enzymes. If swallowed, give a glassful of water or milk and call a Poison Control Center or doctor immediately. Do not induce vomiting. If in eyes, rinse with water for 15 minutes. If on skin, rinse well with water.

SECTION V - FIRE FIGHTING INFORMATION

Flash Point (Method Used): N/A

Flammable Properties: Product is non flammable

Upper Flammable Limit: N/A

Lower Flammable Limit: N/A

Explosive Limits: UEL: N/A LEL: N/A

Auto-ignition Temperature: N/A

Hazardous Combustion Products: N/K

Explosion Data (Sensitivity to Mechanical Impact): N/A

Explosion Data (Sensitivity to Static Discharge): N/A

Extinguishing Media:

Suitable: CO₂, water or dry chemical may be used.

Unsuitable: N/K

Protection of Firefighters:

Specific Hazards Arising from the Material: N/K

Protective Equipment and Precautions for Firefighters: Normal fire-fighting gear.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Personal Precautions: None

Environmental Precautions: Disposal is to be performed in compliance with federal, state/provincial and local regulations. Product must be incinerated.

Methods for Containment: Try to prevent product from reaching waterway.

Methods for Cleanup: Minimize dust levels while collecting product (see "Inhalation" health effects). Dispose of by incineration.

Other Information: (if applicable)

SECTION VII – HANDLING AND STORAGE

Precautions To Be Taken in Handling: Keep product dry to maintain free-flowing granules.

Precautions To Be Taken in Storage: Store in a cool, dry place.

SECTION VIII - EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines: N/A

Engineering Controls: N/A

Personal Protective Equipment (PPE):

Eye/Face Protection: None required with normal use.

Skin Protection: Protective gloves (rubber, neoprene) should be used for prolonged direct contact.

Respiratory Protection: None required with normal use.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Appearance (color, physical form, shape): White granular agglomerate with speckles.

Flash Point (Method Used): N/A

Odor: Perfumed

Solubility in Water: Nearly 100% at 20°C.

Odor Threshold: N/A

Decomposition Temperature: N/K

Physical State: solid

Evaporation Rate (nBuOAc=1): N/K

Vapor Pressure (mm Hg): N/A

Specific Gravity/Density: ~0.94-1.03 g/cc

Vapor Density (Air=1): N/A

Melting/Freezing Point: N/K

Boiling Point: N/A

Reserve Alkalinity: 10.8 (to pH 9.5)

Partition Coefficient (n-octanol/water): N/A

pH (1% solution): ~11.0

Volatile Organic Compound (VOC): Not applicable - Product not regulated for VOC Content at State or Federal level.

SECTION X - STABILITY AND REACTIVITY

Chemical Stability: Stable.

Conditions to Avoid: N/K

Incompatible Materials: N/K

Hazardous Decomposition Products: N/K

Possibility of Hazardous Reactions: N/K

SECTION XI - TOXICOLOGICAL INFORMATION

Cascade Pure Rinse and Complete Powders are expected to exhibit a generally low order of acute toxicity. It may be irritating to mucous membranes and the gastrointestinal tract, but it is not known to be corrosive. It is expected to be emetic. Estimated Acute Oral LD50 (rat): > 2 g/kg

Chronic Effects: No chronic health effects reported.

Target Organs: No target organs reported.

Carcinogenicity: NTP: No **IARC:** No

SECTION XII - ECOLOGICAL INFORMATION

Under normal and foreseeable uses, there are no concerns for aquatic organisms exposed to product ingredients at the anticipated environmental concentrations. Relevant environmental data have been reviewed and these indicate that the product is compatible with down-the-drain disposal routes, including municipal wastewater treatment processes and septic tank systems. This product is intended for dispersive use and should not be disposed of directly into the environment.

SECTION XIII - DISPOSAL CONSIDERATIONS

Waste Disposal Method: Products covered by this MSDS, in their original form, when disposed as waste, are considered non hazardous waste according to Federal RCRA regulations (40 CFR 261). Disposal should be in accordance with local, state/provincial and federal regulations. Product must be incinerated.

Non Household Setting (federal): Minimize dust levels while collecting product (see "Inhalation" health effects). Dispose of by incineration.

Non Household Setting (California): Waste Code 561

Household Use: Product used in household may be disposed of in refuse or in sewer.

SECTION XIV - TRANSPORT INFORMATION

Transportation Information – Products covered by this MSDS, in their original form, are not regulated for transportation.

For finished packaged product transported by ground (US DOT): – not regulated

For finished packaged product transported by sea (IMDG) – not regulated

For finished packaged product transported by air (IATA): – not regulated

SECTION XV - REGULATORY INFORMATION

UNITED STATES - FEDERAL

All intentionally-added components of this product are listed on the US TSCA Inventory.

EPA Registration Number: Not Applicable

SARA chemicals: This product contains the following SARA 313/302/304/311/312 chemicals:

SARA 311 Sodium Tripolyphosphate (CAS# 7758-29-4) (10-30%)

STATES:

This product is not subject to warning labeling under California Proposition 65.

California Registration Number: Not Applicable.

State Right-to-Know and CERCLA:

The following ingredients present in the finished product are listed on state right-to-know lists or state worker exposure lists:

Ingredient	CAS#	Level	States				CERCLA RQ
Sodium Tripolyphosphate	7758-29-4	10-30%	IL	MA	NJ	PA	5000 lbs
Sodium Sulfate	7757-82-6	15-40%	MA	PA			N/A
Sodium Percarbonate	15630-89-4	3-7%	NJ				N/A

Canada

All ingredients are CEPA approved for import to Canada by Procter & Gamble. This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and this MSDS contains all information required by the Controlled Products Regulations.

SECTION XVI - OTHER INFORMATION

Perfumes contained within the products covered by this MSDS comply with appropriate IFRA guidance.

P&G Hazard Rating:	Health:	1	4=EXTREME
	Flammability:	0	3=HIGH
	Reactivity:	0	2=MODERATE
			1=SLIGHT
			0=NOT SIGNIFICANT

*N/A. - Not Applicable

*N/K. - Not Known

Data supplied is for use only in connection with occupational safety and health.

DISCLAIMER: This MSDS is intended to provide a brief summary of our knowledge and guidance regarding the use of this material. The information contained here has been compiled from sources considered by Procter & Gamble to be dependable and is accurate to the best of the Company's knowledge. It is not meant to be an all-inclusive document on worldwide hazard communication regulations.

This information is offered in good faith. Each user of this material needs to evaluate the conditions of use and design the appropriate protective mechanisms to prevent employee exposures, property damage or release to the environment. Procter & Gamble assumed no responsibility for injury to the recipient or third persons, or for any damage to any property resulting from misuse of the product.

I Chemical Product and Company Identification	Product Name ADVANCE OVEN CLEANER		Emergency (800)831-9889
	Product Code 09759280 UPC-A 363652080005 SCC 00363652080012		Medical(Collect) (303)592-1024
II Composition/ Information on Ingredients	Manufacturer JOHNSONDIVERSEY INC. 3630 E. KEMPER RD CINCINNATI, OH 45241-2046		Chemtree (800)424-9300
	Chemical Family ALKALINE OVEN CLEANER		Date 01/29/1999
III Hazards Identification	Chemical Name of Hazardous Ingredient	%	Exposure Limits
	DIPROPYLENE GLYCOL METHYL ETHER (34590-94-8) SODIUM HYDROXIDE (1310-73-2)	<4 <6	TLV 600S; PEL 600; STEL 900 TLV C2; PEL C2
III Hazards Identification	Signs and Symptoms of Exposure CAUSES SEVERE BURNS TO SKIN AND EYES. HARMFUL IF SWALLOWED.		
	SAME AS ACUTE		
	HMIS: Health 3 Flammability 0 Reactivity 0 Personal Protection C		
	Conditions Aggravated SENSITIVE SKIN. MAY AGGRAVATE RESPIRATORY DISEASE.		
	Carcinogen Info NONE NTP IARC OSHA		
	Target Organs or System		
IV First Aid Measures	Routes of Exposure: Inhalation <input checked="" type="checkbox"/> Skin <input checked="" type="checkbox"/> Ingestion <input checked="" type="checkbox"/>		
	Inhalation	REMOVE TO FRESH AIR. GET MEDICAL ATTENTION.	
	Eyes	IMMEDIATELY FLUSH THOROUGHLY WITH FRESH WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION IMMEDIATELY.	
	Skin	FLUSH WITH FRESH WATER. REMOVE CONTAMINATED CLOTHES AND SHOES. GET MEDICAL ATTENTION FOR INJURED SKIN.	
V Fire Fighting Measures	Ingestion	GIVE WATER. DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.	
	Fire Control Measures/ Equipment	WEAR FULL PROTECTIVE GEAR TO PREVENT SKIN CONTACT AND SELF-CONTAINED BREATHING APPARATUS.	
	Flammable Property Info		
	Explosion Info	CORROSIVE OR STRONGLY ALKALINE LIQUID. CONCENTRATE PRODUCT SOLUTION IN CONTACT WITH ALUMINUM RELEASES HYDROGEN GAS.	
	Extinguishing Media	CO2, FOAM, DRY CHEMICALS, WATER	
Gases			

VI Accidental Measures	Spill and Leak Clean UP Procedures	STOP LEAKS AND CONTAIN SPILLS. LIQUIDS SHOULD BE VACUUMED UP OR ABSORBED WITH CLAY OR SAND. PLACE WASTE IN APPROPRIATE COVERED CONTAINER. NEUTRALIZE RESIDUE WITH DILUTE MINERAL ACIDS OR SODIUM BICARBONATE AND FLUSH AREA WITH WATER.			
	Environmental Precaution:	CERCLA PRODUCT RQ = 16,666 LBS OR 1,885 GALLONS			
VII Handling and Storage	Ventilation Required?	NO	Instructions	ADEQUATE VENTILATION	
	Safe Storage, Handling and Use Instructions	KEEP CONTAINER CLOSED. KEEP AWAY FROM ACIDS. DO NOT STORE WITH FOOD. KEEP OUT OF THE REACH OF CHILDREN.			
	Imcompatible Materials				
VIII Exposure Controls/ Personal Protection	Protective Gloves	ALKALINE RESISTANT			
	Eye Protection	SAFETY GOGGLES OR SIDE SHIELDED SAFETY GLASSES			
	Respiratory Protection	USUALLY NOT REQUIRED. WEAR NIOSH ALKALINE CARTRIDGE RESPIRATOR IF TLV/PEL LIMITS ARE EXCEEDED.			
	Other Protective Clothing Equipment	EYE WASH/SAFETY SHOWER. CHEMICALLY IMPERVIOUS CLOTHING AND FOOTWEAR TO PREVENT SKIN CONTACT.			
IX Physical and Chemical Properties	Characteristics o of Hazardous Chemical				
	Vapor Pressure	17.5	MmHg@	20	°C
	Vapor Density(Air=1)	N/A		pH	
	Water Solubility	100		%	
	Appearance & Odor	CLEAR LIGHT BROWN LIQUID; SOLVENT ODOR			
	Boiling Point	215	°F	Melting Point	°F
	Flash Point	NONE		°F	Flammability Limits in Air By Volume: Upper NONE Lower NONE
Specific Gravity	1.06		Oxidizing Properties		
Evaporation Rate(n-Butyl Acetate=1)	<1				
X Stability and Reactivity	Peroxide, Pyrophoric, Unstable or Water Reactive	NONE			
	Reactivity and Hazardous Polymerization	NONE			
	Possible Hazardous Reactions				
	Conditions to Avoid				
	Materials To Avoid	FLAMMABLE LIQUIDS, ORGANIC HALOGENS, CONCENTRATED ACIDS, OR SOFT METALS.			
	Hazardous Decomposition Products	OXIDES OF CARBON			
XI Toxicological Information					
XII Ecological Information	Possible Effects and Environmental Fate				
	Degradability				
	Aquatic Toxicity				
XIII Disposal Consideration	Method of Disposal, Residues and Safe Handling	USE UNTIL LESS THAN ONE INCH REMAINS IN CONTAINER. EMPTY CONTAINER. TRIPLE RINSE WITH WATER, ADD TO OPERATION. REMOVE OR DEFACE CONTAINER LABEL BEFORE SELLING OR DISPOSAL. DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. ADJUST PH; CONTAINS NO PHOSPHORUS.			
	Disposal of Contaminated Material	OXIDES OF CARBON			
XIV Transport Information	CORROSIVE LIQUID,BASIC,INORGANIC,N.O.S.,(SODIUM HYDROXIDE),8,UN3266,PG II, ERG#60, NAERG#154				
XV-Regulatory Information					
XVI-Other Information					
S.A.R.A. Title III Section 313	NONE				
State Right to Know Information	WATER - CAS #7732-18-5 SODIUM HYDROXIDE - CAS #1310-73-2 DIPROPYLENE GLYCOL METHYL ETHER - CAS #34590-94-8 SODIUM GLUCONATE - CAS #527-07-1				