ANSUL

MATERIAL SAFETY DATA SHEET

SILV-EX Foam Concentrate
QUICK IDENTIFIER (Plain Common Name)

Manufacturer's Name: ANSUL FIRE PROTECTION, WORMALD U.S., INC
Emergency Telephone No.: (715) 735-7411
Address: One Stanton Street, Marinette, WI 54143-2542
Other Information Calls: Same
Prepared by: M.J. Hubert and P.A. Gregoire
Date Prepared: March 2, 1987

SECTION 1 — IDENTITY

Common Name (used on label) (Trade Name and Synonyms): SILV-EX
CAS No.: N/A
Chemical Name: N/A This is a mixture
Chemical Family: Mixture
Formula: N/A

SECTION 2 — INGREDIENTS

PART A — HAZARDOUS INGREDIENTS

Principal Hazardous Component(s) (Chemical and common name(s))	%	CAS No.	ACGIH TLV	Acute Toxicity Data
None				

PART B — OTHER INGREDIENTS

Other Component(s) (Chemical and common name(s))	%	CAS No.	Acute Toxicity Data
Proprietary mixture consisting of ethyl alcohol (less than 6%), sodium and ammonium salts of fatty alcohol ether sulfates (C_8 - C_{18}), higher alcohols, and glycol ether not otherwise specified, and water			

SECTION 3 — PHYSICAL AND CHEMICAL CHARACTERISTICS (Fire and Explosion Data)

Boiling Point: 65° - 70 °C
Specific Gravity (H_2O = 1): 1.01 g/ml
Vapor Pressure (mm Hg.): Not Determined
Percent Volatile by Volume (%): Approx. 70
Vapor Density (Air = 1): Below 1
Evaporation Rate (Butyl Acetate = 1): 0.50
Solubility in Water: 100%
Reactivity in Water: Unreactive
Appearance and Odor: Clear pale straw colored liquid; mild sweet odor.

Flash Point: 104 °F PMCC
Flammable Limits in Air % by Volume: Not Determined
Extinguisher Media: Dry Chemical, Water, Spray Foam, CO_2
Auto-Ignition Temperature: None to Boiling
Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

SECTION 4 — PHYSICAL HAZARDS

Stability: Unstable ___ Stable X
Conditions to Avoid: N/A
Incompatibility (Materials to Avoid): Reactive metals, electrically energized equipment, any materials reactive with water
Hazardous Decomposition Products: None known
Hazardous Polymerization: May Occur ___ Will Not Occur X
Conditions to Avoid: N/A

SECTION 5 — HEALTH HAZARDS

Threshold Limit Value: None established by ACGIH or OSHA

Routes of Entry
Eye Contact: May cause mild transient irritation.

Skin Contact: May cause mild transient irritation.

Inhalation: Not an expected route of entry.

Ingestion: Irritating to mucous membranes. Large oral doses could produce narcosis.

Signs and Symptoms: Acute Overexposure: Irritation of the eyes, skin and mucous membranes.

Chronic Overexposure: None known. Possible delayed kidney injury or liver damage.

Medical Conditions Generally Aggravated by Exposure: Prior diseases of the kidney or liver may be aggravated.

Chemical Listed as Carcinogen or Potential: National Toxicology Program: Yes ☐ No ☒ — IARC Monographs: Yes ☐ No ☒ — OSHA Yes ☐ No ☒

SECTION 6 — EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: Flush with large amounts of water. If irritation persists, seek Medical attention.

Skin Contact: Wash with soap and water. If irritation persists, seek Medical attention.

Inhalation: Remove victim to fresh air. Seek Medical attention if discomfort continues.

Ingestion: If patient is conscious, give large amounts of water and induce vomiting. Seek Medical help.

SECTION 7 — SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): Not normally necessary.

Ventilation: Local Exhaust: N/A — Mechanical (General): Recommended

Protective Gloves: N/A — Eye Protection: Chemical goggles recommended.

Other Protective Clothing or Equipment: Standard forest fire fighting safety equipment should provide all protection which is necessary.

SECTION 8 — SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Store in original container. Note incompatibility information in Section 4.

Other Precautions: Do not mix with other fire fighting agents.

Steps to be Taken in Case Material is Released or Spilled: Rinse floor thoroughly with water as material is slippery. Prevent material from reaching sewers or waterways to avoid nuisance foaming.

Waste Disposal Methods: Dispose of in compliance with local, state, and federal regulations.

N/A = Not Applicable NDA = No Data Available

AMSUL is a registered trademark and SILV-EX is a trademark.

CHEMONICS® INDUSTRIES, INC.
MATERIAL SAFETY DATA SHEET
FIRE-TROL® FIREFOAM® 103
EFFECTIVE DATE: JULY 30, 1987

Chemonics Industries, Inc.
734 E. Southern Pacific Drive
Phoenix, AZ 85034
(602) 262-5401
(916) 865-4932

WARNING STATEMENT FOR CONCENTRATE

Avoid eye contact; may be irritating. Avoid unprotected exposure of the skin. Work in a well ventilated area to avoid possible irritation of respiratory tract.

CLASSIFICATION: NON-HAZARDOUS

A. Product Identification

FIRE-TROL FIREFOAM 103 is a proprietary mixture of foaming and wetting agents in a non-flammable solvent. The active ingredients are commonly used in hair shampoo and dishwashing liquid formulas.

B. Occupational Control Procedures

a. For Handling Concentrate:

1. Avoid eye contact with concentrate. Wear goggles when handling concentrate.

2. Avoid skin contact with concentrate. Use rubber or plastic gloves to avoid prolonged skin contact with concentrate.

3. Avoid excessive inhalation of concentrate vapors.

4. Ventilation - Handle concentrate product in a well ventilated area. Permissible concentration in air of hexylene glycol solvent is C25 ppm (125 mg/m3) (CAS #107-41-5).

5. Avoid ingestion of concentrate.

b. For Handling Diluted Product:

1. Avoid unnecessary eye and skin contact.

2. Minimal effects expected from contact if it occurs.

C. **Fire Protection Information for Concentrate**

1. **Flash Point:** Flash point greater than 200° F by Pensky Martens closed cup test.

2. **Extinguishing Media for Concentrate:**

   Carbon Dioxide, dry chemical, foam, or water spray. Class A, BC, or ABC fire extinguishers, sand/earth.

3. **Special Fire Fighting Procedures in Enclosed Areas:**

   There are no special hazards associated with the diluted product as used for fire fighting.

   In case of an accident or fire involving the concentrate, fire fighters must be equipped to prevent breathing of vapors or products of combustion. Wear an approved self-contained breathing apparatus and protective clothing.

4. **Unusual Fire or Explosion Hazards:** None.

D. **Physiological Effects and Health Information**

NOTE: All animal tests reported in this section for both the concentrate and diluted mixtures were done in accordance with "U.S.D.A. Forest Service Specification for Long-Term Retardants: 5100-304a, February, 1986."

The results which follow, are all acceptable under these requirements.

1. **For concentrate before diluting with water:**

a.	**Eye Irritation:**	Moderately Irritating
b.	**Skin Irritation:**	Slightly Irritating
c.	**Acute Oral Toxicity:**	Low; LD 50 greater than 5000 mg/kg.
d.	**Acute Dermal Toxicity:**	Low; LD 50 greater than 2000 mg/kg.

2. **For Diluted Product (1.0% by volume):**

a.	**Eye Irritation:**	Minimally Irritating
b.	**Skin Irritation:**	Slightly Irritating
c.	**Acute Oral Toxicity:**	Low; LD 50 greater than 5000 mg/kg.
d.	**Acute Dermal Toxicity:**	Low; LD 50 greater than 2000 mg/kg.

E. Physical Data

1. Light amber low viscosity liquid.
2. Odor - Bland.
3. pH - 9.0-9.5
4. Specific Gravity - 1.03 or 8.6 lbs per gallon
5. Vapor Pressure (mm Hg) at 20°C: less than 1.

F. Reactivity Data

1. **Stability:** Concentrate has excellent long-term stability for an indefinite period.

   Can be used at a temperatures down to the freezing point of water. Freezing point of concentrate is -10° F; if frozen, the concentrate can be used after thawing. Do not store above 150°F.

2. **Corrosion Performance:** Product has been tested by the USFS according to 90 day weight loss corrosion requirements for Fire Chemicals Specification 5100-304a. There is minimal corrosion on 2024-T3 aluminum and naval brass (less than 0.5 mils per year) and moderate corrosion on mild steel (less than 4 mils per year). These data apply to both the concentrate and the diluted product (1% by volume).

   Approved for use in fixed-wing airtankers, helicopters with buckets, and ground tanks (fire engines as part of field evaluation program.

3. **Storage:** Recommend storing concentrate in polyethylene or polyethylene-lined containers **ONLY. DO NOT** store concentrate in metal tanks. The concentrate is not corrosive and meets USFS requirements for corrosion. However, metal contamination of the concentrate will degrade the foam's performance. This is typical of foaming agents, which are therefore routinely supplied in polyethylene containers.

4. **Hazardous Decomposition Products:**

   There are no significant hazardous decomposition products from a fire's action on the diluted product as used in fire fighting.

   When a fire occurs adjacent to stored concentrate, such as in a highway accident, the concentrate will break down to give off carbon monoxide and oxides of sulfur. These gases can be harmful in enclosed areas so fire fighters must then wear an approved self-contained breathing apparatus and protective clothing.

5. **Hazardous Polymertization:** Will not occur.

6. **Incompatibility (Keep Away From):** Strong oxidizers such as hydrogen peroxide, bromine, and chromic acid.

G. Spill, Leak, and Disposal Information

Spills of **FIRE-TROL FIREFOAM 103** concentrate should be physically removed with a shovel. Sand or other absorbent material can be used to facilitate removal. Direct application of water to **FIREFOAM 103** concentrate may result in excessive foaming. Water can be used for final clean-up after concentrate is removed.

H. Transpiration Data

1. D.O.T.: not regulated.
2. Reportable Quantity: not applicable.
3. Freight Classification: cleaning compound.
4. Non-hazardous, non-flammable, non-corrosive.

I. Environmental Protection

1. **FIRE-TROL FIREFOAM 103** is biodegradable and has minimal environmental impact.

2. Due to the sensitivity of aquatic life to chemicals, we do not recommend application of **FIREFOAM 103** directly into streams or other bodies of water. Ninety six hour LD 50 on juvenile rainbow trout is 27.3 mg of concentrate per liter.

J. Emergency & First Aid Procedures (for Concentrate)

Eye Contact: Flush eyes immediately with plenty of water for at least 15 minutes.

Skin Contact: Wash off with water. Remove contaminated clothing.

Inhalation: Remove person to fresh air and provide oxygen if breathing is difficult. Get medical attention.

NOTICE OF WARRANTY: Chemonics Industries, Inc. warrants that **FIRE-TROL** products are reasonably fit for the purposes for which they were developed only when used in accordance with recommended use practices under normal conditions. In no case shall Chemonics be liable for consequential, special, or indirect damages resulting from the use or handling of these products. ALL such risks shall be assumed by the buyer. **CHEMONICS MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.**

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
ANGUS FIRE ARMOUR CORPORATION	(919) 639 6151
ADDRESS (Number, Street, City, State, and ZIP Code): Broad St., P.O.Box 879, Angier, N.C. 27501	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS: FOREXPAN
CHEMICAL FAMILY: Synthetic detergent	FORMULA: see separate sheet

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
see MSDS of components		

SECTION III - PHYSICAL DATA of CONCENTRATE

BOILING POINT (°F.) above	212°F	SPECIFIC GRAVITY (H_2O=1)	1.03/1.04
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	complete		
APPEARANCE AND ODOR	Almost water white liquid - no odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
above 85°C/185°F			

EXTINGUISHING MEDIA

SPECIAL FIRE FIGHTING PROCEDURES

UNUSUAL FIRE AND EXPLOSION HAZARDS

OSHA Form 20

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Dilute with copious amounts of water

WASTE DISPOSAL METHOD

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL *(General)*	OTHER

PROTECTIVE GLOVES Yes	EYE PROTECTION protective glasses/goggles

OTHER PROTECTIVE EQUIPMENT Protective clothing.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Prolonged contact may cause minor irritation and dryness of the skin. Flush contacted area with water and apply hand cream if dryness occurs. Flush eyes immediately with cold water and seek medical aid if contact is made with eyes.

OTHER PRECAUTIONS

ANGUS FIRE ARMOUR CORPORATION

P.O. Drawer 879
Angier-Kennebec Road and Broad Street
Angier, North Carolina 27501
Telephone: (919) 639-6151
Telex: 579-398

SAFETY DATA SHEET

ALL DATA SUPPLIED IS ON 100% CONCENTRATE

PRODUCT NAME - FOREXPAN

ACTIVE INGREDIENTS - 350 g/liter surfactants
300 g/liter glycols

PHYSICAL PROPERTIES -

Specific Gravity	-	1.03
pH	-	7
Viscosity at 20°C	-	20 Centistokes (mPa.s)
Flash Point	-	85°C

SPILLS, LEAKS & DISPOSAL: Dilute with copious amounts of water

TOXICITY - ON CONCENTRATE

1. 96 hr static LC_{50} to salmonid species fry stage.

   10.92 mg/L (10.4 ppm, V/V) using Probit method of calculation.

2. Oral LD_{50} on rats

   Over 5,000 mg/Kg

3. Dermal LD_{50} on rabbit

   Over 2,000 mg/Kg

4. Eye Irritation on Rabbit

   Severe (Class 5)

5. Skin Irritation

   Mild to Moderate Irritant

   Primary Irritation Score 3.28± 0.73

HANDLING

Wear protective eye glasses and clothing.

EMERGENCY AND FIRST AID PROCEDURES

Prolonged contact may cause minor irritation and dryness of the skin. Flush contacted area with water and apply hand cream if dryness occurs.

Flush eyes immediately with water and seek medical aid if contact is made with eyes.

MONSANTO PRODUCT NAME

PHOS-CHEK® WD861 FIRE SUPPRESSANT FOAM CONCENTRATE

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MO 63167

Emergency Phone No.
(Call Collect)
(314) 694-1000

PRODUCT IDENTIFICATION

Phos-Chek® WD861 fire suppressent foam concentrate is a proprietary formulation.

TSCA Inventory:	As a proprietary formulation, Phos-Chek WD861 fire suppressant foam concentrate has no CAS number. All components of the product appear on the Inventory of Chemical Substances published by the U.S. Environmental Protection Agency.
DOT Hazard Class:	This product is not classified as a hazardous material by the U.S. Department of Transportation.
Label Requirements:	Product Label
U.S. Surface Freight Classification:	Fire Extinguisher Compounds, N.O.I.B.N.
Reportable Quantity (RQ) Under U.S. EPA CERCLA Regulations:	Not Listed
Hazardous Chemical(s) Under OSHA Hazard Communication Standard:	This product contains, as components, several substances which contribute to its irritation properties. The specific chemical identity is being withheld because it is trade secret information of the manufacturer. Identity of components may be made available as provided in 29CFR1910.1200(i).

WARNING STATEMENTS

WARNING!
CAUSES IRRITATION TO EYES, SKIN, AND RESPIRATORY TRACT

PRECAUTIONARY MEASURES

Avoid contact with eyes, skin, and clothing.
Avoid breathing vapor or mist.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

EMERGENCY AND FIRST AID PROCEDURES

FIRST AID: IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Call a physician.

IF ON SKIN, immediately flush with plenty of water. Remove contaminated clothing. Wash clothing before reuse.

IF INHALED, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth If breathing is difficult, give oxygen.

OCCUPATIONAL CONTROL PROCEDURES

Eye Protection: Where there is significant potential for eye contact, wear chemical goggles and have eye baths available.

Skin Protection: Although Phos-Chek WD861 fire suppressant foam concentrate does not present a significant skin concern, skin contamination should be minimized as good industrial practice. Wearing of protective gloves is recommended. Wash hands and contaminated skin after handling.

Respiratory Protection: Avoid breathing vapor or mist. Use NIOSH/MSHA approved equipment when airborne exposure is excessive. Consult respirator manufacturer to determine appropriate type equipment for given application. The respirator use limitations specified by NIOSH/MSHA or the manufacturer must be observed. Respiratory protection programs must be in compliance with 29 CFR 1910.134.

Ventilation: Provide ventilation to minimize exposure. Use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Airborne Exposure Limits: While airborne exposure limits have not been established for Phos-Chek WD861 fire suppresent foam concentrate, limits have been established for a component, hexylene glycol, CAS No. 107-41-5.

ACGIH TLV: 25 ppm ceiling

FIRE PROTECTION INFORMATION

Flash Point: 209°F (Component) ***Method:*** Tag Closed Cup

Extinguishing Media: Water spray, carbon dioxide (CO_2), alcohol foam, and dry chemical.

Special Fire Fighting Procedures: Wear self-contained breathing apparatus and full protective clothing. Decontaminate equipment after use.

REACTIVITY DATA

Stability: This product is stable under ordinary conditions of handling and storage.

Hazardous Decomposition Products: Carbon monoxide, partially oxidized hydrocarbons, smoke, and soot.

Hazardous Polymerization: Does not occur.

HEALTH EFFECTS SUMMARY

The following information presents both human experience and the results of scientific experiments used by qualified experts to assess the effects of Phos-Chek WD861 fire suppressant foam concentrate on the health of industrially exposed individuals and to support the Precautionary Statements and Occupational Control Procedures recommended in this document. To avoid misunderstanding, the data provided in this section should be interpreted by individuals trained in evaluation of this type of information.

Human Experience

Dermal contact and inhalation are expected to be the primary routes of occupational exposure to Phos-Chek WD861 fire suppressant foam concentrate. The product is severely irritating to the eyes and moderately irritating to the skin. Prolonged or repeated skin contact with this component may produce dermal irritation. Inhalation of mists may irritate the nose and throat.

Data from Monsanto studies are as follows:

Oral LD_{50} (Rat): Greater than 5,000 mg/kg, Practically Nontoxic
Dermal LD_{50} (Rabbit): Greater than 2,000 mg/kg, No More Than Slightly Toxic
Eye Irritation (Rabbit, 24-hour): 52.0 on a scale of 0 to 110.0, Severely Irritating
Skin Irritation (Rabbit, 24-hour): 3.4 on a scale of 0 to 8.0, Moderately Irritating

Additional Information

A Threshold Limit Value (TLV) has been established by the American Conference of Governmental Industrial Hygienists for hexylene glycol, a component of Phos-Chek WD861 fire suppressant foam. For further information on hexylene glycol, please refer to the current edition of the *Documentation of Threshold Limit Values* and to the manufacturer's material safety data sheet.

PHYSICAL DATA

Appearance: Golden brown liquid

Specific Gravity @ 25/4°C: 1.03

Solubility in Water (wt. %): Forms foam

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

SPILL, LEAK AND DISPOSAL INFORMATION

Emergency Spill and Leak Information: Collect material for reuse or disposal.

Disposal Information: Incineration is prefered. Comply with local, state, and federal regulations.

DATE: 11/14/86 **SUPERSEDES:** NEW

MSDS NO.: M00010822

FOR ADDITIONAL NON-EMERGENCY INFORMATION, CONTACT:

MSDS Coordinator
Specialty Chemicals
Monsanto Chemical Company
(314) 694-1000
(A Unit of Monsanto Company)

CANTRA

Material Safety Data Sheet

Prepared According to the OSHA Hazard Communication Standard (29 CFR 1910.1200).
(Formerly Called MATERIAL INFORMATION BULLETIN)

Chevron

CHEVRON Supreme Unleaded Gasoline

CPS 201060

DANGER! HARMFUL OR FATAL IF SWALLOWED
VAPOR HARMFUL
LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS
MAY CAUSE EYE AND SKIN IRRITATION
EXTREMELY FLAMMABLE
KEEP OUT OF REACH OF CHILDREN

TYPICAL COMPOSITION

Blend of paraffins, naphthenes, aromatics and olefins including less than 5% benzene (CAS 71-43-2), 1-5% n-hexane (CAS 110-54-3) and 5-15% toluene (CAS 108-88-3) plus xylene (CAS 1330-20-7)	>99%
May contain methyl tert butyl ether (MTBE)(CAS 1634-04-4)	10% (Max)
TECHROLINE*, other additives and dye	<.1%
Lead (as lead alkyl)	.05g/gal.

*Trademark for polyether amine gasoline additive.

EXPOSURE STANDARD

The ACGIH (1984-85) TLV for gasoline is 300 ppm for a daily 8-hour exposure. No Federal OSHA exposure standard has been established for this material. See Additional Health Data for discussion of benzene exposure limits.

PHYSIOLOGICAL & HEALTH EFFECTS

Eye irritation may result from contact with the liquid or exposure to the vapor. The scientific literature warns that vapor concentrations above 500 ppm are irritating.

Prolonged or frequently repeated liquid contact may cause skin irritation or may cause the skin to become cracked or dry from the defatting action of this material. See Additional Health Data.

Prolonged or repeated breathing of gasoline vapor may be harmful. See Additional Health Data.

This material is expected to be only slightly toxic by ingestion. Note to Physician: See Additional Health Data.

EMERGENCY & FIRST AID PROCEDURES

Eyes

Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. If irritation persists, see a doctor.

Skin

Wash skin thoroughly with soap and water. See a doctor if any signs or symptoms described in this MSDS develop or if any skin irritation occurs. Launder contaminated clothing.

Inhalation

Move exposed person to fresh air. If breathing has stopped, apply artificial respiration. Call a doctor immediately. See Respiratory Protection, Page 2.

Ingestion

If swallowed, DO NOT make person vomit. Call a doctor immediately.

ADDITIONAL HEALTH DATA

See Page 3.

SPECIAL PROTECTIVE INFORMATION

Eye Protection: Keep away from eyes. Eye contact can be avoided by wearing chemical safety goggles.
Skin Protection: Keep away from skin. Skin contact can be minimized by wearing impervious protective clothing including gloves.
Respiratory Protection: Avoid prolonged breathing of vapor by using approved respiratory protection. In open areas, such as outdoor gasoline transfer areas, ventilation is usually adequate to prevent prolonged breathing of high gasoline vapor concentrations. See Additional Health Data.
Ventilation: Use this material only in well ventilated areas.
Comment: If you experience any of the signs or symptoms described in this MSDS, you may be exposed to harmful gasoline levels. Your exposure can be minimized if you follow the protective measures presented above.

FIRE PROTECTION

This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches.
Flash Point: (P-M)<-49°F(-45°C)
Autoignition Temp.: NDA
Flammability Limits: 1.4-7.6%
Extinguishing Media: CO_2, Dry Chemical, Foam, Water Fog
Special 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. Read the entire MSDS.

SPECIAL PRECAUTIONS

ENVIRONMENTAL PROTECTION

Environmental Impact: Certain geographical areas have air pollution restrictions concerning the use of materials in work situations which may release volatile components to the atmosphere. Air pollution regulations should be studied to determine if this material is regulated in the area where it is to be used. This material is considered to be a water pollutant. Every effort should be made to prevent any release of this product to the ground or to water including drainage and sewage systems.
Precautions if Material is Released or Spilled: Eliminate all sources of ignition in vicinity of spill or released vapor. Clean up small spills using appropriate techniques such as sorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Follow prescribed procedures for reporting and responding to larger releases.
Waste Disposal Methods: Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Contact local environmental or health authorities for approved disposal of this material.

REACTIVITY DATA

Stability (Thermal, Light, etc.): Stable
Incompatibility (Materials to Avoid): May react with strong oxidizing materials.
Hazardous Decomposition Products: Normal combustion forms carbon dioxide and water vapor; incomplete combustion can produce carbon monoxide.
Hazardous Polymerization: Will not occur.

PHYSICAL PROPERTIES

Solubility: Soluble in hydrocarbons; insoluble in water.
Appearance (Color, Odor, etc.): Red liquid
Boiling Point: 25-225°C (Range)*
Melting Point: n/a
Specific Gravity: 0.7-0.8 (Range)
Vapor Pressure: 5-15 psi (max.) @ 100°F (Range)*
Vapor Density (Air=1): 3-4(Range)
Percent Volatile (Volume %): 99+
Evaporation: NDA
* Variable with season and location.

n/a = Not Applicable

See Page 3.

NDA = No Data Available

Material Safety Data Sheet

CHEVRON Supreme Unleaded Gasoline

CPS 201060

ADDITIONAL HEALTH DATA

Ingestion of gasoline or inhalation of gasoline vapor at airborne concentrations exceeding 1000 ppm may cause signs and symptoms of central nervous system depression such as headache, dizziness, loss of appetite, weakness and loss of coordination. Vapor concentrations in excess of 5000 ppm may cause loss of consciousness, coma and death. Intentional exposures to excessively high concentrations (e.g., when used as a drug of abuse) have been reported to result in clinical manifestations that may include convulsions, delirium, and hallucinations. These manifestations are not known to occur following accidental inhalation of vapor or skin contact with gasolines during normal operations. Brief exposures to high vapor concentrations may also cause pulmonary edema and bronchitis. Note to Physician: Ingestion of this product or subsequent vomiting can result in aspiration of light hydrocarbon liquid which can cause pneumonitis.

This product may contain up to 4.9% benzene. Repeated or prolonged breathing of benzene vapors has been associated with the development of chromosomal damage in experimental animals and various blood diseases in humans ranging from aplastic anemia to leukemia (a form of cancer). All of these diseases can be fatal. Following a two-year cancer bioassay sponsored by the National Toxicology Program, NTP concluded that benzene is a carcinogen for rats and mice of both sexes. Note: Limiting the total hydrocarbon exposure to 300 ppm, the ACGIH TLV for gasoline, may not keep the benzene concentration below the 10 ppm Federal OSHA exposure standard and ACGIH TLV for benzene.

This product contains n-hexane. Prolonged or repeated contact with n-hexane may produce peripheral neuropathy characterized by progressive weakness and numbness in the extremities, loss of deep tendon reflexes and reduction of motor nerve conduction velocity. Recovery ranges from no recovery to complete recovery depending upon the duration of exposure and the severity of the nerve damage.

This product contains toluene. Toluene has been reported to decrease immunological response in test animals. Toluene has been reported to increase malformations in chicks exposed during organogenesis.

This product contain xylene. Xylene has been reported to be embryotoxic, teratogenic and to cause developmental disturbances in rats exposed in utero.

The American Petroleum Institute (API) sponsored a study where laboratory animals were exposed to 67, 292 and 2056 ppm unleaded gasoline vapor six hours/day, five days/week for approximately two years. Each exposure group consisted of 200 rats and 200 mice. During the course of the study, male rats had an increased incidence of kidney damage followed by repair and enlargement of the kidney tubules. At the end of the study, a dose-related incidence of microscopic kidney tumors was detected in the male rats; two tumors were found in the low exposure group, and five were found in the high exposure group. Female rats and both male and female mice did not show this type of lesion. It was noted in the study that the animals that were exposed to gasoline vapor lived longer than the control. Thus, the significance of the tumor findings is difficult to evaluate at this time. Additional findings in the API-sponsored study, which were observed only at the highest dose tested (2065 ppm), included (1) failure to gain body weight, (2) increased incidence of hepatocellular carcinomas (liver cancer) in female mice, and (3) lung inflammation in

male and female rats. Subsequent testing has shown that the six to ten carbon isoparaffinic compounds in gasoline are apparently responsible for the early kidney damage seen in the male rat in the API study although the larger isoparaffins have not been individually tested. Information collected by the API and others indicates that the damage occurs only in the male rat, does not occur in female rats or mice and monkeys of either sex and may not occur in man. How this early kidney injury relates to the development of kidney tumors seen in the API study is currently unknown.

The significance to man of the results of the studies discussed above is not known. While we believe that low level or infrequent exposure to gasoline vapor is not likely to cause cancer or other serious disease, in light of the above information, the precautions outlined in this MSDS should be carefully observed. If strong odor of gasoline is present or if any irritation occurs, individuals should leave the area or institute suitable protective measures (see page 2 - Special Protective Information).

SPECIAL PRECAUTIONS

NEVER siphon gasoline by mouth. READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

Use only as a motor fuel. Do not use for cleaning, pressure appliance fuel, or any other such use. DO NOT USE OR STORE near flame, sparks or hot surfaces. USE AND STORE ONLY IN COOL, WELL VENTILATED AREA. Keep container closed. DO NOT TRANSFER LIQUID TO AN UNLABELED CONTAINER. DO NOT weld, heat or drill container. Replace cap or bung. Emptied container still contains hazardous or explosive vapor or liquid.

PROCTER & GAMBLE

Foodservice & Lodging Products Divisic
Winton Hill Technical Center
6071 Center Hill Road
Cincinnati, Ohio 45224

MATERIAL SAFETY DATA SHEET

Dear Customer:

Attached is a Material Safety Data Sheet (MSDS) for our product, Dawn. This MSDS was written to comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200). The intent of the Standard is to protect workers in industrial situations from hazardous materials in the work place; however, the scope of the Standard covers some cleaning product ingredients.

Dawn is "hazardous" within the meaning of the OSHA Hazard Communication Standard because of its ethanol content. Ethanol is considered hazardous because of its flammability and vapors which can be irritating to eyes and upper respiratory passages. The product has a DOT Classification as follows: Combustible Liquid - not regulated in packagings of less than 110 gallons; however, Dawn does not sustain combustion nor does it pose a significant fire hazard when used as intended.

Thank you for your interest in our products.

THE PROCTER & GAMBLE COMPANY
Foodservice & Lodging Products Division

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PROCTER & GAMBLE

Foodservice & Lodging Products Divisic
Winton Hill Technical Center
6071 Center Hill Road
Cincinnati, Ohio 45224

MATERIAL SAFETY DATA SHEET

Issue Date: 11/1/87

SECTION I

Emergency Telephone Number: 1-800-543-4252

Identity: Dawn (Brand Code 08152)

Ingredients/Chemical Name: Cleaning and sudsing agents (anionic and nonionic surfactants) dispensing aid (ethyl alcohol) water, stabilizing agents, colorants and perfume.

Other: N.A.

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Ingredients as defined by OSHA, 29 CFR 1910. 1200.

Chemical Name	Common Name	Cas No.	ACGIH TLV	OSHA PEL	Other Limits Recommended
Ethanol	Ethyl Alcohol	64-17-5	1000 ppm	1000 ppm 1900 mg/m^3	N.K.

DOT Classification: Combustible liquid not regulated in packaging of less than 110 gallons. (NA 1993)

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point (°F):	N.A.	Specific Gravity (H_2O=1):	1.03
Vapor Pressure (mm Hg):	N.A.	Percent Volatile by Volume (%):	~60%
Vapor Density (Air=1):	N.A.	Evaporation Rate (nBuOAc=1):	N.A.
Solubility in Water:	Complete	Appearance and Odor:	Clear blue perfumed liquid.

SECTION IV - FLAMMABILITY AND REACTIVITY

Flash Point (Method Used): 116°F (closed cup). Although this product has a flash point below 200°F (closed cup) it is an aqeous solution containing ethyl alcohol and does not sustain combustion.

Explosive Limits: LEL: N.A. UEL: N.A.

Extinguishing Media: Use CO_2, water or dry chemical

Special Fire Fighting Procedures: None Known

Unusual Fire Hazards: None Known

Stability	Unstable:	Conditions to Avoid: None Known
	Stable: X	
Incompatability (Materials to avoid):		Products containing chlorine
Hazardous Decomposition/By-Products:		Chloramines in small amounts
Hazardous Polymerization	May Occur:	Conditions to Avoid: None Known
	Will Not Occur: X	

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SECTION V - HEALTH AND SAFETY DATA

Route(s) of Entry: Oral, skin contact, eye contact.

Health Hazards (Acute and Chronic) Ingestion: May cause transient gastrointestinal irritation. Skin: Prolonged contact with concentrated product may be drying or irritating to skin. Eye Contact: May cause stinging, tearing, itching, swelling and/or redness.

Signs and Symptoms of Exposure: Expected to be emetic if ingested. May cause nausea and/or diarrhea. May cause mild transient irritation if eye contact occurs. Prolonged contact with concentrated material may be drying or transiently irritating to skin.

Medical Conditions Generally Aggravated by Exposure: Pre-existing dermatitis may be aggravated by prolonged contact with concentrated material.

Emergency and First Aid Procedures: Eye Contact: Flush thoroughly with water for 15 minutes. Ingestion: Drink a glassful of water. Skin: If prolonged contact occurs, rinse thoroughly with water. If spilled on clothing, change clothes.

Other: N.A.

SECTION VI - PRECAUTIONS FOR SAFE HANDLING AND USE

Precautions to be Taken in Handling and Storing: None required

Other Precautions: Do not mix with chlorine bleach as transient, irritating fumes may result.

Steps to be Taken in Case Material is Released or Spilled: Flush small quantities down acceptable sewer (contains biodegradable surfactants). Prevent spills from reaching waterway. Sorbents may be used.

Waste Disposal Method: Disposal is to be performed in compliance with all regulations. Small or household quantities may be disposed of in sewer. For larger quantities incineration is preferred. Do not landfill.

SECTION VII - SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): None required with normal use.

Ventilation	Local Exhaust: None required with normal use. Mechanical (General): Acceptable	Special: None Other: None
Eye Protection: None required with normal use. If a splash is likely, goggles may be needed.		Protective Gloves: None required with normal use. Protective gloves should be used for prolonged direct contact.

Other Protective Equipment: None required with normal use.

*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.