

E. F. Products, Inc.

MATERIAL SAFETY DATA SHEET

MSDS: 377

**SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION**

**Company:**

E F Products, Inc.  
1860 Crown Drive, Suite 1400  
Dallas, Texas 75234  
Phone No.: 1-888-396-0422  
CHEMTREC Phone No.: 1-800-298-9164

**HAZARD RATING**

Health	1	0 = Insignificant
Fire:	1	1 = Slight
Reactivity:	0	2 = Moderate
Special:	--	3 = High
Toxicity:	3	4 = Extreme

**Product Description:** Automotive UV Dye

**Name:** 377 Quest Dexcool UV Leak Detector, 1 oz  
(Standard package contains 1 oz, avoirdupois)

**Product Code:** 377

**MSDS Date:** 2-29-08

**Supersedes:**

**SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS**

#	Description	CAS Reg. No.	Amount
1.	Proprietary Ingredient	NA (blended Product)	>90%
2.	DiethyleneGlycol	111-46-6	<3.5%
3.	Neopentyl Glycol	126-30-7	<3.5%
4.	Proprietary Ingredient	--	<3.5%

NA: Not Available; ppm: parts per million

Note: 1 ppm equals 3.8 mg/m<sup>3</sup>; 5 ppm equals 19 mg/m<sup>3</sup>; 10 ppm equals 38 mg/m<sup>3</sup>; 100 ppm equals 380 mg/m<sup>3</sup>.

**SECTION 3: HAZARDS INFORMATION**

This product contains hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

As defined under Sara 311 and 312, this product contains materials that are acute, chronic hazards.

**EMERGENCY OVERVIEW:**

This product contains Diethylene Glycol which may be fatal or cause serious health effects if swallowed. Repeated skin exposure may result in absorption of harmful amounts. Massive contact with damaged skin or of material sufficiently hot to burn skin may result in absorption of potentially lethal amounts. Neopentyl Glycol may lead to serious damage to the eyes.

**PORTALS of ENTRY:** Eye contact, skin contact, and dermal absorption.

**EYE CONTACT:** Liquid splashes may cause eye irritation.

Neopentyl Glycol: Avoid contact with the eyes, there is a risk of serious eye damage.

**SKIN CONTACT:**

DIETHYLENE GLYCOL: Prolonged or repeated exposure not likely to cause significant skin irritation. A single, prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. Repeated skin exposure may result in absorption of harmful amounts. Massive contact with damaged skin or of material sufficiently hot to burn skin may result in absorption of potentially lethal amounts.

**INHALATION:**

Not expected to be a problem under normal use. Avoid breathing vapors or mists. Higher temperatures may generate vapor levels sufficient to cause adverse effects.

**INGESTION:**

DIETHYLENE GLYCOL: Oral toxicity is moderate in humans, even though tests with animals show a much lower level of toxicity. THE LETHAL DOSE IN HUMANS IS APPROXIMATELY 2 OUNCES, (65ml). Swallowing may also result in chronic health effects. May cause nausea and/or vomiting. Excessive exposure may cause central nervous system effects; cardiopulmonary effects, such as metabolic acidosis; and kidney failure.

**CARCINOGENICITY INFORMATION:**

DIETHYLENE GLYCOL: Based on data from long-term animal studies, components are not believed to pose a carcinogenic risk to man.

**REPRODUCTIVE HAZARDS:**

DIETHYLENE GLYCOL: Exposure to diethylene glycol has caused birth defects in laboratory animals only at doses toxic to the mother. Diethylene glycol has not interfered with reproduction in animal studies except at very high doses.

**TARGET ORGAN:**

Diethylene glycol: Repeated, internal exposures may cause severe kidney, liver, and gastrointestinal effects. Signs and symptoms of excessive exposure may be nausea and/or vomiting. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects. Observation in animals include formation of bladder stones after repeated oral doses of diethylene glycol. Reports of kidney failure and death in burn patients suggest that diethylene glycol may have been a factor.

<b>SECTION 4: FIRST AID MEASURES</b>
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**EYE CONTACT FIRST AID:**

Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.

**SKIN CONTACT FIRST AID:**

Immediately wash skin with plenty of soap and water while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists. Discard all contaminated articles, including shoes, belts, and other articles made of leather.

**INHALATION FIRST AID:**

Although this product is not known to cause respiratory problems, if breathing is difficult, remove to fresh air and provide oxygen. Get medical attention.

**INGESTION FIRST AID:**

**GET IMMEDIATE MEDICAL ATTENTION OR CONTACT A POISON**

**CONTROL CENTER.** If several ounces of this material is inadvertently swallowed and medical advice is delayed, immediately give 3 - 4 ounces of hard liquor to the victim to drink. Reduce the amount proportionally, based on body weight.

**MISCELLANEOUS:**

DIETHYLENE GLYCOL: Poisoning may initially produce behavior changes, drowsiness, vomiting, diarrhea, thirst, and convulsions.

**NOTES TO PHYSICIAN:**

**DIETHYLENE GLYCOL:** Due to structural analogy and clinical data, this material may have a mechanism of intoxication similar to ethylene glycol. Consider the use of ethanol and hemodialysis when significant quantities have been consumed. Consult standard literature for details.

4-Methyl pyrazole is an effective blocker of alcohol dehydrogenase and should be used in the treatment of diethylene intoxication, if available. Signs and symptoms of diethylene glycol poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be monitored for 24 - 48 hours for signs of respiratory distress. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.

<b>SECTION 5: FIRE FIGHTING MEASURES</b>
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**FIRE AND EXPLOSIVE PROPERTIES:**

<b>PROPERTY</b>	<b>PACKAGED PRODUCT</b>
TCC Flash Point: (°C); [°F]:	154.0 C (309.2 F)
Auto-Ignition Temperature (°C):	NA
<b>FLAMMABLE LIMITS IN AIR</b>	
Lower Explosive Limit (ppm):	2%
Upper Explosive Limit (ppm):	12.3%

**EXTINGUISHING AGENTS:**

Water fog or fine spray. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Carbon dioxide and dry chemical. Do not use direct water stream, as it may spread the fire.

**FIRE & EXPLOSION HAZARDS:**

Can burn in fire, releasing toxic vapors. Heating above 270 F decomposes to Biuret, Ammonia and Nitrogen Oxides. Short-term exposure to smoke and gases may lead to irreversible lung injury, without early signs and symptoms. Diethylene glycol will ignite in air at 435 F. Hazardous combustion products may include and are not limited to carbon monoxide, carbon dioxide, and trace amounts of aldehydes and organic acids.

**FIRE FIGHTING INSTRUCTIONS:**

Diethylene glycol or solutions of diethylene glycol and water can form flammable vapors with air if heated sufficiently. Evacuate non-emergency personnel to a safe area. Isolate area and deny unnecessary entry. Wear full protective clothing and positive pressure breathing apparatus. Prevent run off to sewers and bodies of water from firefighting involving this product as product contains Clean Water Act Priority Pollutants. Irritating toxic substances may be emitted upon thermal decomposition.

Exposed firefighters should wear NIOSH approved self contained breathing apparatus with full face piece and full protective clothing. Vapors are denser than air and will have a tendency to accumulate in lower areas which can cause the vapors to concentrate and suffocate. The product is typically packaged in 1 oz containers, which aids in isolating product but creates problems if the containers are exposed to fire or excessive heat that could result in container rupture.

**SECTION 6: ACCIDENTAL SPILL OR LEAK RELEASE INFORMATION**

**PERSONAL PROTECTION:**

Evacuate non-emergency personnel to a safe area. Protect skin and eyes from exposure. If exposed to material during clean-up operations, see the FIRST AID PROCEDURES Section for actions to follow. Appropriate protective equipment, PVC-coated rubber gloves and monogoggles or faceshield can be used during cleanup of spill site.

**INITIAL CONTAINMENT:**

Evacuate the spill area. Floor may be slippery if product has wetted the floor; use care to avoid falling. Ventilate the spill area. Avoid breathing vapor. Contain spilled material. Take up and place in secure closed containers. Do not allow material to enter soil or surface water. Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

**LARGE SPILLS PROCEDURE:**

Large spillage should be dammed-off and pumped into containers. Take up the remainder by absorbent material. Treat or dispose of waste material in accordance with all local state, provincial, and national requirements. Prevent spilled product from entering streams or drinking water supply.

**SMALL SPILLS PROCEDURE:**

Clean up area by absorbent material. Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

**SECTION 7: HANDLING AND STORAGE**

**RECOMMENDED STORAGE TEMPERATURE**

Minimum: 4.4 C (39.9 F)

Maximum: 49 C (120F)

**HANDLING (PERSONNEL):**

The vapor concentration levels in air need to be kept below occupational exposure limits and kept as low as practicable. Avoid breathing spray mists if generated. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

**HANDLING (PHYSICAL ASPECTS):**

Do not mix product with air or oxygen under pressure. Avoid exposure of product to flame or very hot surfaces. Vapors can be evolved when material is being used in processing operations. Agitate containers before use. Product on surfaces can cause slippery conditions.

**STORAGE PRECAUTIONS:**

Store in a cool, well ventilated place. Avoid extreme temperatures. Keep container closed when not in use. Keep away from food and drinking water. Keep containers dry.

**SPECIAL SENSITIVITY:**

KEEP FROM FREEZING. MUST MIX WELL BEFORE EACH USE.

**SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION**

**FACILITY CONTROL MEASURES:**

Use Local exhaust ventilation with a minimum capture velocity of 100 ft/min (0.5 m/sec) at the point of vapor or dust evolution. may be necessary to control any air contaminants to within their TLVs during the use of this product. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

**EYE / FACE PROTECTION REQUIREMENTS:**

Chemical goggles are recommended to avoid contact with eyes.

**SKIN PROTECTION REQUIREMENTS:**

Gloves of Polyvinyl alcohol and Viton may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection: Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. Wash hands thoroughly after handling. If hands are cut or scratched, use gloves impervious to this material even for brief exposures.

Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact. When handling hot material, protect skin from thermal burns as well as from skin absorption.

**RESPIRATORY PROTECTION REQUIREMENTS:**

A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. If vapors or mists are generated, wear a NIOSH/MSHA approved organic vapor/mist respirator or an air-supplied respirator as appropriate. Atmospheric levels should be maintained below the exposure guideline.

Up to 10 times the TWA/TLV: Wear a half-mask, air purifying respirator.

Up to 1000 ppm organic vapor: Wear an approved full-face piece, air-purifying respirator.

Above 1000 ppm organic vapor or unknown: Wear an approved positive pressure mode or an approved full-face piece airline respirator in the positive pressure mode with emergency escape provisions.

**MISCELLANEOUS:**

Use good personal hygiene practices; limit exposure to product whenever possible to minimize clean-up.

**EXPOSURE GUIDELINES:**

**CONFIDENTIAL INGREDIENT # 4:**

OSHA PEL: 5 mg/m<sup>3</sup>

OSHA TWA: 10 mg/m<sup>3</sup>

**DIETHYLENE GLYCOL:**

American Industrial Hygiene Association (AIHA) Workplace Exposure Level  
Environmental, (WEEL) is 50 ppm, total; 10 mg/m<sup>3</sup>.

<b>SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES</b>
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**TYPICAL PHYSICAL PROPERTIES:**

FORM: Liquid

COLOR: Orange

ODOR: Faint Odor

BOILING POINT: 100 C

SOLUBILITY IN WATER: Complete

SPECIFIC GRAVITY: approx. 1.025 (Water = 1)

MELTING/FREEZING POINT: < 0 C

VAPOR DENSITY (Air = 1.0): 6.3

EVAPORATION RATE (n-butyl acetate = 1.0): 0.8

## **SECTION 10: STABILITY AND REACTIVITY**

### STABILITY:

This compound is stable at ambient conditions. Diethylene Glycol will ignite in air at 435 F (224 C).

### POLYMERIZATION:

Hazardous polymerization will not occur.

### INCOMPATIBILITY WITH OTHER MATERIALS:

Avoid contact with strong oxidizers, acids or bases. Avoid contact with Nitrates. May react with Hypochlorites to produce explosive Nitrogen Trichloride.

### DECOMPOSITION:

Decomposition may produce ammonia, biuret, oxides of carbon, nitrogen and sulphur. Hazardous combustion products may include and are not limited to: carbon monoxide, carbon dioxide, trace amounts of aldehydes, alcohols, ethers and organic acids.

## **SECTION 11: TOXICOLOGICAL INFORMATION**

### COMPONENT EXPOSURE INFORMATION:

#### PROPRIETARY INGREDIENT #1:

Non-hazardous, non-toxic

#### DIETHYLENE GLYCOL:

Test Code: Teratology (Birth Defects)

Description: Birth defects are unlikely from exposure to diethylene glycol. Exposures having no adverse effects on the mother should have no effect on the fetus.

Test Code: Oral LD50

Species: Rat

Results: 20,750 mg/kg.

Test Code: Skin Irritation

Results: Prolonged or repeated exposure not likely to cause significant skin irritation.

Test Code: Human Studies

Results: Lethal dose approximately 2 ounces, (65 ml)

#### NEOPENTYL GLYCOL

Test Code: LD50 Acute Oral Toxicity

Species: Rat

Results: > 5000 mg/kg

Test Code: Primary Eye Irritation

Species: Rabbit

Results: severe irritant

#### PROPRIETARY INGREDIENT #4:

Test Code: LDLO

Species: Domestic Animal

Results: May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. A single dose of 100 grams has reportedly caused mild symptoms of central nervous system depression e.g. drowsiness and slow reflexes.

Test Code: Skin Irritation

Results: Repeated or prolonged contact may cause reddening, itching and inflammation.

Results: In an NCI sponsored lifetime feeding study, this ingredient caused an increase in the incidence of cancers (malignant lymphomas) in female mice: however, because this effect was not dose related, its biological significance was questioned by the investigators. Other effects in male rats were also of questionable significance.

Test Code: Developmental Toxicity/Teratogenicity  
Species: Rats & Mice  
Results: No external teratogenicity; mean birthweight lower, but larger litter size at 50 g/kg/d in rats and mice.  
Test Code: Acute Oral Toxicity  
Species: Cattle  
Results: LD50: 510 mg/kg

#### **SECTION 12: ECOLOGICAL INFORMATION**

##### **DIETHYLENE GLYCOL**

Test Code: EC50  
Species: Daphnia Magna  
Results: 49000 mg/liter  
Test Code: EC50  
Species: Mussel  
Results: 331 mg/liter  
Test Code: LC50  
Species: Rainbow Trout (*Oncorhynchus mykiss*)  
Results: > 1000 mg/liter  
Test Code: LC50  
Species: Goldfish (*Carassius auratus*)  
Results: > 5000 mg/liter

##### **NEOPENTYL GLYCOL**

Test Code: LC50  
Description: 48 hour test  
Species: *Leucidus Idus*  
Results: > 500 mg/l  
Persistence and Degradation: NA.

#### **SECTION 13: DISPOSAL INFORMATION**

##### **WASTE DISPOSAL:**

Uncleaned empty containers should be disposed of in the same manner as the contents. Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

#### **SECTION 14: TRANSPORTATION INFORMATION**

**Proper Shipping Name:** NA  
**Hazard Class:** NA  
**Identification Number:** NA  
**Packing Group:** NA  
**Hazardous Substance (RQ):** NA  
**Placard/Label:** NA

#### **SECTION 15: REGULATORY INFORMATION**

This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).

This material or all of its components are listed on the Canadian Domestic Substances List (DSL).

This material or all of its components are listed (or considered as having been notified) on the European Inventory of Existing Chemical Substances (EINECS).

This material or all of its components are listed on the Chinese Inventory.

This material or all of its components are listed on the Australian Inventory of Chemical Substances, AICS.

This material or all of its components are listed on the Japanese Existing and New Chemical Substances ENCS.

This material or all of its components are listed on the Korean Existing and Evaluated Chemical Substances ECL.

CALIFORNIA PROPOSITION 65: This material contains chemicals known to the State of California to cause cancer: 1,4 Dioxane, CAS # 123-91-1, < 0.01 ppm.

CALIFORNIA PROPOSITION 65: This material contains chemicals known to the State of California to cause birth defects or other reproductive harm: Ethylene Glycol monomethyl ether, CAS # 109-86-4, < 0.001 ppm.

Massachusetts Substance List

DIETHYLENE GLYCOL (111-46-6)

NJ Right to Know List

DIETHYLENE GLYCOL (111-46-6)

PA Hazardous Substance List

DIETHYLENE GLYCOL (111-46-6)

<b>SECTION 16: OTHER INFORMATION</b>
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All information, recommendations, and suggestions made by E F Products, Inc. ("Company") appearing herein concerning our product are based upon tests and data believed to be reliable. However, because of the variable characteristics of analytical procedures and samples, and the inability to control its customers' uses of the information and recommendations, or the related products or materials, Company makes NO WARRANTY, EXPRESS OR IMPLIED as to the accuracy of the information or recommendations or that such are fit for any general or specific purpose, whatsoever. Company shall have NO LIABILITY arising from the use by its customers or any third parties of the information and recommendations, and it shall be each customer's sole responsibility to determine the suitability for its own use of any information or recommendations provided by Company.

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