

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

# MATERIAL SAFETY DATA SHEET

## TRI-FLOW® LUBRICANT - LIQUID

**Diversified Brands, Inc.**  
**A Sherwin-Williams Company**  
31500 Solon Road  
Solon, OH 44139  
(216) 498-2300

EMERGENCY TELEPHONE NO.  
(216) 566-2917  
INFORMATION TELEPHONE NO.  
(800) 832-2541

### SECTION 1 - PRODUCT IDENTIFICATION

Product: **TRI-FLOW® LUBRICANT - LIQUID**

**UPC CODES:**

32053 21020; 32053 26000; 32053 29200; 32053 89010

**FORMULA NUMBER:**

M050727

This Material Safety Data Sheet (MSDS) contains toxicology, industrial hygiene, and environmental information for your employees. Please make sure they are provided with this information. It also contains information to assist with meeting community right-to-know and emergency response reporting requirements under SARA Title III and other laws. If you resell this product, provide the buyer with this MSDS or incorporate this information into a new MSDS. Disregard any previous edition of this MSDS. This MSDS was prepared according to the OSHA Hazard Communication Standard (29 CFR §1910.1200) and the ANSI MSDS Standard (ANSI Z400.1) by HAZARD INFORMATION SERVICES™, 8100 34th Ave. South, P.O. Box 1309, Mpls, MN 55440-1309.

### SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS

Name (CAS #)	%	Exposure Limits	References
Petroleum distillates mixture	80-90	100 ppm TLV-TWA 500 ppm PEL-TWA (as Stoddard Solvent)	ACGIH 95-96 OSHA 89
<i>N</i> -Amyl acetate (628-63-7)	2-3	100 ppm TLV-TWA 100 ppm PEL-TWA	ACGIH 95-96 OSHA 89
Sulfonic acids, petroleum, barium salts (61790-48-5)	2-3	0.5 mg/m <sup>3</sup> TLV-TWA 0.5 mg/m <sup>3</sup> PEL-TWA (As soluble barium)	ACGIH 95-96 OSHA 89
Dipropylene glycol monomethyl ether (34590-94-8)	2-3	100 ppm TLV-TWA (S) 150 ppm TLV-STEL (S) 100 ppm PEL-TWA 150 ppm PEL-STEL	ACGIH 95-96 OSHA 89
Zinc dialkylphosphorodithioic acid) (68649-42-3)	1-2	NDA	—

### SECTION 3: HAZARD IDENTIFICATION

#### EMERGENCY OVERVIEW

**APPEARANCE AND ODOR:** Brown liquid with fruity odor

**STATEMENT OF HAZARD: DANGER!**

**ACUTE HAZARDS:** • Harmful or fatal if swallowed, contains petroleum distillates  
• Combustible  
• May cause skin irritation

**CHRONIC HAZARDS:** • Possible neurological effects

<b>NFPA RATING:</b>	Health - 2	Flammability - 1	Reactivity - 0	Special - NDA
<b>HMIS RATING:</b>	Health - 2	Flammability - 1	Reactivity - 0	Protective Equipment - X

**SECTION 3: HAZARD IDENTIFICATION (Continued)**

NFPA and HMIS ratings are assigned by *HAZARD INFORMATION SERVICES<sup>SM</sup>* based on criteria published by the National Fire Protection Association and the National Paint & Coatings Association respectively, and should only be interpreted by persons trained in these rating systems.

1993 DOT Emergency Response Guide Book: 27

**ROUTES OF ENTRY:**

- Eye contact
- Skin contact
- Inhalation
- Ingestion.

**POTENTIAL HEALTH EFFECTS:**

**ACUTE EFFECTS:**

Local Effects (eyes, skin, nose, throat, stomach, etc.)

- May cause skin irritation
- Ingestion may cause vomiting, abdominal cramping and diarrhea

Systemic Effects

- Aspiration of material into the lungs may cause chemical pneumonitis
- Absorption of large amounts through ingestion, inhalation, or dermal contact may cause central nervous system depression

**SUB-CHRONIC EFFECTS**

- Irritant contact dermatitis

**NON-CARCINOGENIC CHRONIC EFFECTS**

- Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal

**REPRODUCTIVE OR DEVELOPMENTAL EFFECTS**

- This product conforms to California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

**CANCER**

- This product conforms to 29 CFR §1910.1200(g)(2)(vii)
- This product conforms to California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

**POSSIBLE TARGET ORGANS**

- Lungs
- Central Nervous System

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE**

- Pulmonary disorders
- Neurological disorders

**SECTION 4: FIRST AID**

**For Assistance With Medical Emergencies Contact:  
(216) 566-2917**

**EYE CONTACT**

- Immediately flush with plenty of water
- Remove contact lenses and continue flushing for at least 15 minutes
- Seek medical attention if irritation develops and persists

**SKIN CONTACT**

- Remove contaminated clothing
- Flush affected area with water then wash with mild soap and water
- Seek medical attention if irritation develops and persists

**INGESTION**

- Immediately rinse mouth out with plenty of water
- Do NOT induce vomiting
- Call physician or poison control center immediately

**INHALATION**

- Remove to fresh air
- Seek medical attention if breathing difficulty develops

**NOTES TO PHYSICIANS**

- For assistance with medical emergencies contact (216) 566-2917

**SECTION 5: FIRE FIGHTING MEASURES**

Flash point and Method: &gt;150° F (&gt;66° C) SETA FLASH

Flammable Limits: LEL 1.1%

Autoignition Temperature: NDA

**GENERAL HAZARD**

- Combustible
- Keep away from all sources of ignition including sparks, heat and open flame

**EXTINGUISHING MEDIA**

- Use water fog, alcohol foam, carbon dioxide, or dry chemical

**FIRE FIGHTING INSTRUCTIONS**

- Wear appropriate protective clothing
- Use self-contained breathing apparatus
- Do not direct a solid spray of water at burning pools as splattering may occur

**HAZARDOUS COMBUSTION PRODUCTS**

- Oxides of carbon
- Barium compound
- Zinc compounds

**SENSITIVITY OF EXPLOSION BY MECHANICAL CONTACT**

- NDA

**SENSITIVITY OF EXPLOSION BY STATIC DISCHARGE**

- NDA

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

For Assistance With Accidental Releases Contact:  
(216) 566-2917

**GENERAL**

- Do not attempt to clean up chemical spills without appropriate personal protective equipment (see section 8)
- Extinguish or remove all ignition sources
- Use spark-proof equipment
- Collect spilled product and transfer to sealable container for reuse or disposal
- Rinse area and collect water for disposal
- Keep waste out of sewers, waterheds, and waterways
- See section 13 for information on the disposal of recovered material

**REPORTABLE QUANTITY (RQ)**

- N-amyl acetate (628-63-7); 5,000 lbs (2270 kg)

**SECTION 7: HANDLING AND STORAGE**

Storage Temperature: Ambient

Storage Pressure: Atmospheric

**GENERAL**

- Keep away from sparks, heat, and open flame
- Close container after each use
- Store in a cool location out of direct sunlight
- Store away from incompatible materials (see section 10)
- Use with proper personal protective equipment (see section 8)
- Keep containers tightly closed at all times
- Empty containers may retain hazardous properties, follow all MSDS/label warnings even after container is emptied
- Do not reuse empty container for food, clothing, or products for human or animal consumption
- Keep this and all chemicals out of reach of children

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION****ENGINEERING CONTROLS**

- Assure that ventilation is adequate
- Use explosion proof equipment
- Assure that all electrical equipment is grounded

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)****PERSONAL PROTECTION****RESPIRATOR**

- Under normal use conditions and in the presence of adequate ventilation, no respiratory protection is necessary
- If ventilation is inadequate, the use of an approved air purifying respirator may be necessary
- Seek professional advice prior to respirator selection and use
- Follow OSHA respirator regulations (29 CFR §1910.134)
- If there is the potential for an uncontrolled release, or situations where exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection, use a positive pressure air supplied respirator

**EYE PROTECTION**

- Use of safety glasses is recommended

**PROTECTIVE CLOTHING**

- Use of protective gloves is recommended

**SAFETY EQUIPMENT**

- None

**GENERAL**

- Use good personal and industrial hygiene practices
- Wash thoroughly after using product
- Keep product off of clothing and equipment
- Launder contaminated clothing before re-use
- Do not eat, drink, or smoke in any work area
- It is always good industrial hygiene practice to limit, to the extent feasible, skin and eye contact and inhalation of chemical products

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

Physical State:	Liquid	Appearance:	Brown
Odor:	Fruity	Vapor Pressure:	NDA
Vapor Density (air = 1):	NDA	Evaporation Rate (n-butyl acetate = 1)	NDA
Percent Non-Volatile By Volume	61.64%	VOC (percent by weight):	35.414
Freezing Point:	NDA	Melting Point:	NDA
Boiling Point:	NDA	Viscosity:	48 +/- 5.0 cps
Specific Gravity:	0.88	Bulk Density:	7.32 lbs/gal
Solubility in water:	Insoluble	pH:	NA
n-Octanol-water partition coefficient:		NDA	

**SECTION 10: STABILITY AND REACTIVITY****GENERAL**

- This product will not polymerize

**INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID**

- Strong oxidizing agents
- Do not mix with other materials unless specified on the label

**HAZARDOUS DECOMPOSITION PRODUCTS**

- Oxides of carbon
- Barium compounds
- Zinc compounds

**SECTION 11: TOXICOLOGICAL INFORMATION**

This section provides relevant information with regard to toxicity studies performed on either the product, or the "pure" form of the component(s). This information can be subject to misinterpretation. Therefore, it is essential that the following information be interpreted by individuals trained in its evaluation. For assistance with interpreting this information, contact (216) 566-2917.

**PRODUCT BASED**

- This product did not produce eye irritation in experimental studies. Skin testing showed the potential for slight, yet reversible skin irritation (Primary Irritation Index = 2.5) This product was not found to be orally toxic (LD50 > 5.0 gram/kg) or dermally toxic (LD50 > 2.0 grams/kg).

**SECTION 11: TOXICOLOGICAL INFORMATION (Continued)****INGREDIENT BASED**

- Skin and eye contact with petroleum distillates mixture is expected to cause minimal irritation with redness and swelling. Inhalation of vapors of petroleum distillates mixture may cause irritation to nose and throat and nausea. Inhalation of very high concentrations may cause central nervous system depression including drowsiness, headache, confusion, dizziness and incoordination. Generally, small ingestions of petroleum distillates mixtures are non-toxic and produce only minimal gastrointestinal irritation including nausea and diarrhea. Aspiration of the material into the lungs may cause chemical pneumonitis which is characterized by coughing, choking, difficulties breathing, pulmonary edema and hemorrhage. There are no available data indicating petroleum distillates mixtures as a carcinogen or reproductive toxin. IARC has determined that petroleum solvents, as a class, are not classifiable as to their carcinogenicity in humans (IARC Group 3).
- Short term (3-5 minutes) inhalation of 100 ppm n-amyl acetate (CAS# 628-63-7) vapor has caused slight irritation of the throat; inhalation of 200 ppm caused mild eye and nose irritation and severe throat irritation. Inhalation of very high concentrations may cause central nervous system depression characterized by drowsiness, headache, confusion, dizziness and incoordination. Short term eye and skin contact with liquid n-amyl acetate would be expected to cause slight irritation. Prolonged and/or repeated skin contact with n-amyl acetate may cause drying of the skin with subsequent dermatitis characterized by redness and itching. Liquid n-amyl acetate was not a dermal sensitizer in controlled human patch test studies. There are no data available implicating n-amyl acetate as a carcinogen or a reproductive or developmental toxin.
- Short-term inhalation of 35-75 ppm dipropylene glycol monomethyl ether (CAS# 34590-94-8) produces eye, nose, and throat irritation in humans; vapor concentrations ranging from 80-200 ppm are considered intolerable and produce marked irritation of the eyes, nose and throat. Inhalation of very high concentrations may cause central nervous system depression characterized by drowsiness, headache, confusion, dizziness and incoordination. Short-term skin contact with liquid dipropylene glycol monomethyl ether has not been shown to be irritating to human skin. Liquid dipropylene glycol monomethyl ether was not a dermal sensitizer in controlled human patch test studies. Liquid dipropylene glycol monomethyl ether can cause mild, reversible eye irritation. There are no data available implicating dipropylene glycol monomethyl ether as a carcinogen or a reproductive or developmental toxin.
- The major routes of exposure to sulfonic acids, petroleum, barium salts (CAS# 61790-48-5) are skin and eye contact, inhalation of its mists/vapor and, ingestion. Skin and eye exposure to sulfonic acids, petroleum, barium salts would be expected to cause mild to moderate irritation with varying degrees of redness, swelling and pain. Inhalation of mists/vapor of sulfonic acids, petroleum, barium salts would also be expected to cause irritation of the upper respiratory tract (e.g. mouth, nose, and throat) causing cough and, possibly, shortness of breath. Sulfonic acids, petroleum, barium salts have been shown to be moderately toxic following ingestion; the oral LD50 of sulfonic acids, petroleum, barium salts in rats has been estimated to be 418 mg/kg. Ingestion of sulfonic acids, petroleum, barium salts would also be expected to cause irritation of the gastrointestinal tract, possibly accompanied by nausea and diarrhea. There are no data available regarding the ability of sulfonic acids, petroleum, barium salts to cause adverse reproductive and developmental effects or cancer in either humans or experimental animals.
- There are very limited toxicological data on zinc salts of dialkylphosphorodithioic acid (68649-42-3). Skin and eye contact with liquid zinc salts of dialkylphosphorodithioic acid is expected to cause severe irritation with redness, itching, swelling and pain. Inhalation of its mists would also be expected to cause irritation of the upper respiratory tract (e.g. mouth, nose, and throat). Dermal exposure to zinc salts of dialkylphosphorodithioic acid have produced testicular damage in experimental rats and rabbits; there are no data available to confirm these effects in humans. There are no data implicating zinc salts of dialkylphosphorodithioic acid as being either mutagenic or carcinogenic.

**SECTION 12: ECOLOGICAL INFORMATION**

NDA

**SECTION 13: DISPOSAL INFORMATION****GENERAL**

- Consult a local expert for advice on the disposal of this material
- Characteristics of recovered material may differ from those of original material
- Ensure that disposal is in compliance with local, state, and federal regulations

**SECTION 14: TRANSPORT INFORMATION**

DOT PROPER SHIPPING NAME: Flammable liquid, n.o.s. (petroleum distillates), 3, UN1993, III

**SECTION 15: REGULATORY INFORMATION****Chemical Inventories**

- All components of this product are included on the TSCA inventory list, the DSL/NDL, and the EINECS

**Reportable Quantities (RQ)**

- N-amyl acetate (628-63-7); 5,000 lbs (2270 kg)

**SECTION 15: REGULATORY INFORMATION**

**SARA TITLE III (Superfund Amendments and Reauthorization Act)**

§302 Extremely Hazardous Materials  
 • None

§304 Notification Of Accidental Release

- N-amyl acetate (628-63-7)
- Sulfonic acids, petroleum, barium salts (61790-48-5)
- Zinc dialkylphosphorodithioic acid (68649-42-3)

§311/312 Hazard Categories

Immediate (Acute) Health Effects: YES  
 Delayed (Chronic) Health Effects: YES  
 Fire Hazard: YES  
 Sudden Release of Pressure Hazard: NO  
 Reactivity Hazard: NO

§313 Toxic Chemical Release Reporting

- Sulfonic acids, petroleum, barium salts (61790-48-5)
- Zinc dialkylphosphorodithioic acid (68649-42-3)

**STATE REGULATORY INFORMATION:**

• Since each state has the authority to promulgate standards more stringent than the federal government, this section cannot provide an inclusive list of all state regulations which apply to this product. Questions related to state regulations should be directed toward local officials.

**SECTION 16: OTHER INFORMATION**

**ABBREVIATIONS**

ACGIH ..... American Conference of Governmental Hygienists  
 AIHA ..... American Industrial Hygiene Association  
 CAS# ..... Chemical Abstracts Service Number  
 DOT ..... Department Of Transportation  
 DSL ..... Domestic Substance List  
 EINECS ..... European Inventory of Existing Chemical Substances  
 IARC ..... International Agency for Research on Cancer  
 IATA ..... International Air Transport Association  
 IMO ..... International Maritime Organization

LEL ..... Lower Explosion Limit  
 MSDS ..... Material Safety Data Sheet  
 NDSL ..... Non-Domestic Substance List  
 NTP ..... National Toxicology Program  
 OSHA ..... Occupational Safety and Health Administration  
 RTECS ..... Registry of Toxic Effects of Chemical Substances  
 STEL ..... Short Term Exposure Limit  
 TERIS ..... Teratogen Information System  
 TLV ..... Threshold Limit Value  
 TSCA ..... Toxic Substances Control Act  
 TWA ..... Time-Weighted Average  
 UEL ..... Upper Explosion Limit  
 WFFI ..... Workplace Environmental Exposure Level

**REVISION SUMMARY**

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 • Update MSDS  
 • Conversion to 16 Section Format  
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 Senior Toxicologist

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