
SECTION 3: HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR: Black or tan liquid; strong hydrocarbon odor.

Extremely flammable liquid and vapor. Vapor may cause flash fire. Use water spray to cool materials in or near a fire. Fire may be difficult to extinguish. Vapors may travel, and can be ignited by a remote source.

Inhalation of vapors from the product may cause upper respiratory irritation, and other effects--remove affected individuals to fresh air.

Skin irritation may be treated by gently washing affected area with soap and warm water.

Eye irritation may be treated by flushing eyes with large amounts of water. If irritation persists, contact a physician.

In the event of fire, use normal fire fighting procedures to prevent inhalation of smoke, gases, and vapors.

Potential Health Effects

Summary:

Exposure to vapors from this product may be irritating to eyes, respiratory passages, and mucous membranes. Excessive skin contact may cause irritation, and dryness. Exposure to vapors, or prolonged exposure may also result in respiratory or skin sensitization.

Acute (Short-Term) Health Effects:

Excessive exposure to the vapors from this product is irritating to the eyes, skin, and respiratory tract. It may cause fatigue, weakness, confusion, headache, dizziness, drowsiness, and numbness in limbs (arms and legs). Very high concentrations are anesthetic and may have other central nervous system effects, including death.

Chronic (Long-Term) Health Effects:

Prolonged, excessive exposure to vapors may cause nervous system, kidney, and liver damage. Repeated or prolonged exposure will defat the skin, causing drying, cracking, and dermatitis. Inhalation of vapors, or prolonged skin exposure may also result in sensitization (due to polyisocyanate) resulting in allergic type reactions upon subsequent exposures.

Target Organs:

Skin, eye, lungs, central nervous system (CNS), respiratory, kidney, liver.

Primary Routes of Entry (Exposure):

Inhalation, skin, and eye contact.

Medical Conditions Which May Be Aggravated:

Pre-existing respiratory and skin diseases or conditions; central nervous system (CNS), kidney, and/or liver diseases; and prior isocyanate sensitization.

Symptoms Of Overexposure

Inhalation:

Irritation of the upper respiratory tract. Fatigue, weakness, drowsiness, and headache. Allergic or asthma-type reactions may occur following sensitization to isocyanates.

Skin:

Drying of skin, and dermatitis may occur following prolonged exposures. Allergic type reactions may occur following sensitization to isocyanates.

Absorption:

Toluene can be absorbed by skin, mucous membranes, and eyes, either by direct contact, or exposure to vapors. Absorption may result in over-exposure to toluene, despite air levels that are within applicable exposure limits.

Ingestion:

This product is not intended to be ingested or eaten under normal conditions of use. If ingested, it may cause temporary irritation of the gastrointestinal (GI) tract, especially the stomach.

Eye:

Irritation, redness, and burning in eyes may occur.

SECTION 4: FIRST AID MEASURES

Inhalation:

Remove individual to fresh air and administer artificial respiration or oxygen as necessary.

Skin:

Immediately wash exposed skin with soap and water. If irritation develops or persists, seek medical attention.

Absorption:

Same as skin contact.

Ingestion:

Product is not intended to be ingested or eaten. If this product is ingested, do not induce vomiting. Seek medical attention.

Eye:

Immediately flush eyes with plenty of water for 15-20 minutes. Seek medical attention.

Notes to Physician:

This product contains toluene, n-hexane, xylene, VM&P naphtha, titanium oxide, isopropyl alcohol, and polyisocyanate, which may cause health effects as noted in Sections 3 and 11. Treatment for inhalation, skin contact, or ingestion should be symptomatic.

SECTION 5: FIRE FIGHTING MEASURES

Summary:

Extremely flammable liquid and vapor. Vapor may cause flash fire. Use water spray or fog to cool materials in or near fire. If possible, move burning material outside. Fire is difficult to extinguish. Use NIOSH-approved self-contained breathing apparatus operating in the pressure demand mode and full fire fighting protective clothing. Avoid inhalation of vapors, which may include isocyanates, carbon monoxide, carbon dioxide, or oxides of nitrogen.

Unusual Fire/Explosion Hazards:

Vapor may form flammable atmosphere in confined spaces or low areas. Pressure build-up may also occur in closed, heated containers. Water spray or fog should be used to keep containers cool.

Extinguishing Media:

Carbon dioxide (CO₂), dry chemical, or foam. Do not use a solid stream of water because it can scatter and spread fire.

Flammable Properties and Explosive Limits:

Flash Point: -13°C/8°F

Lower Explosive Limit 1.0% (LEL):

FP Test Method: Closed cup

Upper Explosive Limit 7.0% (UEL):

Autoignition Temperature: 223°C/433°F

Flame Classification: Not determined **Decomposition Temperature:** Not determined

Flame Propagation: Not determined

SECTION 6: ACCIDENTAL SPILL/RELEASE MEASURES

Containment Procedures:

Remove all sources of ignition. Evacuate and ventilate spill area. Dam spill area with sand, earth, or other suitable absorbant. Prevent entry of material into sewers, other water sources, or land areas. Wear full protective clothing and respiratory protection during clean-up as required to maintain exposures below the applicable exposure limit. Shovel absorbed material into containers in well-ventilated area.

Disposal:

This material is classified an ignitable hazardous waste by the Resource Conservation and Recovery Act (RCRA; 40 CFR 261: Waste # D001). Dispose of material in accordance with federal, state, and local regulations in a permitted hazardous waste management facility. Incineration is the preferred method of disposal. Empty containers must be handled with care due to product residue. Decontaminate empty containers prior to disposal. Do not heat or cut empty containers with electric or gas torch. If you are unsure of the regulations, contact your local Public Health Department, or local offices of the Environmental Protection Agency (EPA).

SECTION 7: HANDLING AND STORAGE

Storage Handling:

Use protective equipment as described in Section 8 of this material safety data sheet when handling uncontained material. Material should be kept in a cool, dry area. Warehouse storage should be in accordance with package directions, if any. Store in tightly closed containers to prevent contamination. Handle with non-sparking tools. Launder contaminated clothing. **KEEP OUT OF REACH OF CHILDREN.**

Conditions to Avoid:

Keep away from ignition sources, such as heat, sparks, pilot lights, static electricity, and open flames. Vapors are heavier than air and may travel along ground to distant ignition sources and flash back. Containers exposed to elevated temperatures may develop pressure build-up and rupture. Store away from strong oxidizing agents, acids, and bases.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Summary:

Protective equipment should be provided as necessary to prevent inhalation of vapors, prolonged skin contact, and to keep exposure levels below the applicable exposure limits identified in Section 2. Wear long sleeves, long trousers, and industrial shoes to protect skin from sealant contact.

Eye:

Safety glasses with sideshields, or a face shield is recommended.

Skin:

Hycron® gloves should be used to help prevent excessive skin contact. Polyvinyl alcohol (PVA), Teflon (polytetrafluoroethylene), Viton (fluorocarbon rubber) have all been indicated as suitable materials of construction for protection from toluene, n-hexane, xylene, and naphtha.

Respiratory:

Use a NIOSH-approved organic vapor respirator to protect against inhalation of vapors. If isocyanate vapors are present above the established exposure limits, a self-contained breathing apparatus must be used. Poor warning properties of isocyanates preclude the use of any air-purifying respirator.

A respirator should be used if ventilation is unavailable, or is inadequate for keeping vapor levels below the applicable exposure limits.

Ventilation:

Local exhaust or general dilution ventilation may be required to maintain exposures below the applicable exposure limits. The need for ventilation systems should be evaluated by a professional industrial hygienist, while the design of specific ventilation systems should be conducted by a professional engineer.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point (°F/°C):	66°-140°C/151°-284°F
Evaporation Rate (Butyl acetate = 1) :	0.7-8.3
Melting Point:	Not determined
pH:	Not determined
Saturation in Air (%):	Not determined
Solids Content:	Not determined
Specific Gravity (Water = 1):	0.83-0.89
Vapor Density (Air = 1):	2.0-4.0
Vapor Pressure:	6.7-45.0
Viscosity:	10
VOCs (g/liter):	614-637 g/L
Volatile by Volume (%):	75%
Water Solubility (%):	Negligible

Appearance and Odor:

Black or tan liquid; strong hydrocarbon odor.

SECTION 10: STABILITY AND REACTIVITY

Product is stable.

Hazardous polymerization will not occur.

Incompatible Materials:

Strong oxidizers and reducing agents, strong acids and alkalis.

Hazardous Decomposition Products:

Low molecular weight hydrocarbons, hydrogen chloride, metallic oxides, oxides of carbon, nitrogen, and sulfur, organic acids, aldehydes, alcohols, and isocyanates.

SECTION 11: TOXICOLOGICAL AND EPIDEMIOLOGICAL DATA

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of the individual ingredients, and those hazards must be assumed to be additive in the absence of complete information. The hazards described in this document have been evaluated based on a threshold of 1.0% for all hazardous ingredients and 0.1% for all carcinogens.

Acute Effects:

This product contains toluene, hexane, xylene and aliphatic petroleum distillates, which are skin, eye, and upper respiratory irritants and may cause fatigue, weakness, confusion, headache, dizziness, drowsiness, and numbness in arms and legs. Very high concentrations are anesthetic and may have other central nervous system effects, including death. Eye contact may cause irritation, with tearing (watering), reddening, and swelling. Ingestion may produce irritation of the gastrointestinal tract.

Toxicity (LD₅₀):

Product toxicity has not been determined. Following are data (per kilogram of species body weight) for the components of this product:

Toluene

rat, oral: 636 mg/kg

rabbit, skin: 14.1 mL/kg

Toxicity (LC₅₀):

Toluene

rat, inhalation: 49 g/m³

human, inhalation: 200 ppm (CNS effects)

Heptane

human, inhalation: 1,000 ppm (CNS effects)

Chronic Effects:

Prolonged excessive exposure to toluene, hexane, and xylene may cause nervous system, kidney, and/or liver damage. Repeated, prolonged skin contact will defat the skin, causing drying, cracking, and dermatitis. Exposure to vapors, or prolonged skin contact may result in sensitization to isocyanate products. Hexane has been reported to cause peripheral neuropathy.

References:

Ashland Chemical, Inc., material safety data sheet for Manville SPM Black Lap Splice Adhesive, P.O. Box 2219, Columbus, OH 43216, 7/26/93.

Carlisle Syntec Systems, material safety data sheet for Sure-Seal EP-95 Splicing Cement, 1285 Ritman Highway, Carlisle, PA 17013, 11/20/91.

Carlisle Syntec Systems, material safety data sheet for Brite Ply Splicing Cement, 1285 Ritman Highway, Carlisle, PA 17013, 12/14/93.

"Suspect Chemicals Sourcebook: A Guide to Industrial Chemicals Covered Under Major Regulatory and Advisory Programs," Clansky, K. B., editor, Roytech Publications, 1989.

"Chemical Safety Data Guide," Joseph, E.Z., Editor, The Bureau of National Affairs, Washington D.C., 1985.

NIOSH, "Pocket Guide to Chemical Hazards," U.S. Department of Health and Human Services, NIOSH Publication 90-117, 1990.

"Handbook of Toxic and Hazardous Chemicals and Carcinogens," 2nd Edition, Sittig, M., Editor, Noyes Publications, Park Ridge, NJ, 1985.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:

This product has not been tested.

SECTION 13: DISPOSAL CONSIDERATIONS

Summary:

This material is classified an ignitable hazardous waste by the Resource Conservation and Recovery Act (RCRA; 40 CFR 261: Waste # D001). Dispose of material in accordance with federal, state, and local regulations in a permitted hazardous waste management facility. Incineration is the preferred method of disposal. Empty containers must be handled with care due to product residue. Decontaminate empty containers prior to disposal. Do not heat or cut empty containers with electric or gas torch. If you are unsure of the regulations, contact your local Public Health Department, or local offices of the Environmental Protection Agency (EPA).

SECTION 14: TRANSPORT INFORMATION

Transportation Summary:

The DOT classification listed below may not always apply to shipments of this product. Consult the bill of lading for appropriate transport information.

US DOT Proper Shipping Name:

Adhesive, containing a flammable liquid

Hazard Class and Division:

3

UN/NA Number:

UN1133

Packing Group:

II

Hazard Label:

Flammable Liquid

SECTION 15: REGULATORY INFORMATION

U. S. REGULATIONS

Federal Regulations:

The Occupational Safety and Health Administration (OSHA), National Toxicology Program (NTP), International Agency for Research on Cancer (IARC), and American Conference of Governmental Industrial Hygienists (ACGIH) have not classified this product as a carcinogen.

The Permissible Exposure Limits (PELs) reported in this MSDS are from the air contaminants standard OSHA issued in 1989. While an appeals court eventually vacated this standard, it was without authority to reverse state law under which states, operating with their own OSHA programs, had adopted the 1989 standard. Below is a list of states enforcing the 1989 standard. Please also refer to 29 CFR 1910.1000 and to relevant state statutes for other applicable exposure limits.

State Regulations:

States Enforcing 1989 Air Contaminants Standard:

AK, CA, CT, ME, MI, MN, NM, TN, WA, WI

Component	CAS #	State(s)
Toluene	108-88-3	CA, FL, MA, MI, MN, NJ, PA
Xylene (o-, m-, p- isomers)	1330-20-7	CA, FL, MA, MI, MN, NJ, PA
n-Hexane	110-54-3	FL, MA, MN, NJ, PA
n-Heptane	142-82-5	CA, FL, MA, MN, NJ, PA
VM&P naphtha	8032-32-4	NJ, PA

California Safe Drinking Water and Toxics Enforcement Act (Proposition 65):

Warning. This product contains the following substance(s) known to the state to cause birth defects: toluene.

Environmental Regulations:

Component	CAS #	Percent	SARA 313	SARA 302		CERCLA
				TPQ(lbs)	CERCLA	RQ(lbs)
Toluene	108-88-3	0-60	Yes	NA	Yes	1,000
Xylene (o-, m-, p- isomers)	1330-20-7	4-14	Yes	NA	Yes	100
n-Hexane	110-54-3	0-14	No	NA	Yes	1

Resource Conservation and Recovery Act (RCRA):

Pursuant to Resource Conservation and Recovery Act (RCRA; 40 CFR 261) regulations, product waste is classified as unlisted hazardous waste characteristic of ignitability, RCRA code D001. The reportable quantity (RQ) is 100 pounds.

Toxic Substances Control Act Inventory (TSCA 8(b)):

This product and its components are listed.

Other TSCA Requirements:

Isopropanol (CAS 67-63-0) is regulated under Section 4(e), testing for health effects; Section 8(a), inventory update reporting; and Section 12 (b), notification of export.

INTERNATIONAL REGULATIONS

Canada Environmental Protection Act Domestic Substance List (Section 25(1) DSL): This product

and its components are listed.

SECTION 16: OTHER INFORMATION

For additional information concerning this product, contact the Johns Manville Product Information Center at PO Box 5108, Denver, CO USA 80217-5108, or call toll-free 800-654-3103 within the US or Canada. Otherwise, call 303-978-4900 collect.

MSDS Revision Summary:

Date	MSDS #	Reason
01/31/92	3104-1.0	Format revision Changed pdate, publisher.
06/01/92	3104-2.0	Manufacturer name change
03/15/93	3104-3.0	Revision of Sects. 2, (Ingredients) & 11, (Regulatory Information) to coincide with manufacturer information. Sect. 1: Added Expand-O-Flash Adhesive to Trade Names Sect. 11: Revised Transportation Information
06/15/93	3104-3.1	Combined with material safety data sheet No. 3122. Sect. 2,3: Regulatory: exposure limits and "Skin" designation for toluene
09/15/93	3104-3.2	Sect. All Sects. Editorial changes to add SPM Lap Cement
09/30/93	3104-3.3	Sect. 2,4,8,11: Editorial changes
12/31/93	3104-3.4	Sect. 1: Header & Product Names
01/31/94	3104-4.0	All Sects. revised for new ingredient listing
02/28/94	3104-4.1	Sect. 3,5,7: Flammable statement; Sect. 11: DOT
04/30/94	3104-4.2	Sect. 9: Flash point, LEL, UEL
05/01/95	3104-4.3	Conversion to ANSI 16 section format.
12/31/97	3104-4.4	Company name change; Section 1 Warning Label: added L-7427 (Expand-O-Flash Contact Adhesive) and SL-2099-U (SPM Lap Cement - White), Trade Names: changed Expand-O-Flash Adhesive to Expand-O-Flash Contact Adhesive; Section 2: adjusted toluene percentage; Section 11 References: updated supplier information for Expand-O-Flash Contact Adhesive; Section 15 Regulatory: added TSCA 12(b) information.
03/11/99	3104-4.5	Section 1: replaced SPM® with UltraGard® EPDM.

Prepared for:

Johns Manville
Roofing Systems Group
P. O. Box 5108
Denver, CO USA 80217-5108

Prepared by:

Johns Manville Technical Center
P.O. Box 625005
Littleton, CO USA 80162-5005

--- END OF MSDS 3104-4.5 ---
