

GenFlex Roofing Systems Material Safety Data Sheet

Material Name: VRQ' Bonding Adhesive

June 1, 2009

*** Section 1 - Chemical Product and Company Identification ***

Product Use: Adhesive

Manufacturer Information

GenFlex Roofing Systems, LLC
250 West 96th Street
Indianapolis, IN 46260

Phone: 317-575-7190 (Non-Emergency)

Emergency # 1-800-424-9300 (CHEMTREC)

International # 1-703-527-3887 (CHEMTREC)

General Comments

NOTE: CHEMTREC telephone number is to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 - Hazards Identification ***

Emergency Overview

Product is a flammable amber yellow liquid. This product may be harmful or fatal if swallowed or inhaled. Inhalation of vapors in large amounts may cause CNS depression. This product is a pulmonary aspiration hazard.

Potential Health Effects: Eyes

This product may cause irritation to the eyes. Vapors, fumes, or particles from this material will cause eye irritation. Symptoms include redness, swelling, tearing and blurred vision.

Potential Health Effects: Skin

This product may cause irritation to the skin. Prolonged or repeated contact may cause redness, cracking and may dry and/or defat the skin. This product may be harmful if it is absorbed through the skin.

Potential Health Effects: Ingestion

This product may be harmful or fatal if swallowed. Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of small amounts into the lung may produce severe lung damage, including chemical pneumonitis.

Potential Health Effects: Inhalation

This product is harmful or fatal if inhaled. Inhalation of vapors may cause irritation of the respiratory tract. Other symptoms may include signs of CNS depression involving weakness, dizziness, giddiness, loss of coordination and judgement. Severe overexposure may cause coma and death due to respiratory failure. This product contains significant amounts of n-hexane, which can damage the peripheral nervous system and produce paralysis, numbness, or tingling in the extremities. Chronic overexposure to vapors may produce symptoms including permanent damage to the central nervous system (e.g., chronic headaches, memory loss, behavioral changes, hallucinations), birth defects and reproductive hazards.

HMIS Ratings: Health: 2* Fire: 3 Reactivity: 0 Pers. Prot.: chemical goggles, impervious gloves

(Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard)

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Approx. Percent
108-88-3	Toluene	50-75
142-82-5	Heptane (n-)	5-20
110-54-3	Hexane	5-20

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Immediately flush eyes with plenty of water for at least 15 minutes.

First Aid: Skin

For skin contact, promptly wash with soap and water. If irritation develops, get medical attention.

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First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting unless instructed to do so by medical personnel.

First Aid: Inhalation

If inhaled, remove immediately to fresh air. If symptoms develop or persist, seek immediate medical attention.

First Aid: Notes to Physician

This material, if aspirated into the lungs, may cause chemical pneumonitis; treat the affected person appropriately.

***** Section 5 - Fire Fighting Measures *****

Flash Point: 0°F (-19.4°C)

Upper Flammable Limit (UFL): 7.5%

Auto Ignition: Not available

Rate of Burning: Not available

General Fire Hazards

Product is a flammable liquid. Fire and explosion hazards are moderate when this product is exposed to heat or flame. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. Empty containers may retain product residue including Flammable or Explosive vapors. Do not cut, drill, grind, or weld near full, partially full, or empty product containers.

Hazardous Combustion Products

Upon combustion the product may yield smoke, fumes, aldehydes, carbon monoxide, carbon dioxide and other low molecular weight hydrocarbons.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog. Use water to cool fire-exposed containers and to protect personnel. Water may be an ineffective extinguishing medium.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus.

NFPA Ratings: Health: 2 Fire: 3 Reactivity: 0

(Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe)

***** Section 6 - Accidental Release Measures *****

Containment Procedures

Contain by any means necessary. Eliminate all sources of ignition or flammables that may come into contact with a spill of this material.

Clean-Up Procedures

Absorb spilled material with nonflammable inert absorbent. Do not allow the spilled product to enter public drainage system or open water courses. Ventilate the contaminated area. Thoroughly wash the area with water after a spill or leak clean-up.

Evacuation Procedures

Evacuate the area promptly. Keep upwind of the spilled material and isolate exposure.

Special Procedures

Avoid skin contact and inhalation of vapors during disposal of spills.

***** Section 7 - Handling and Storage *****

Handling Procedures

Do not breathe gas/fumes/vapor/spray. Use this product with adequate ventilation. Do not get this material in your eyes, on your skin, or on your clothing. Wash thoroughly after handling. Keep this product from heat, sparks, or open flame.

Storage Procedures

Keep this material in a cool, well-ventilated place. Eliminate all sources of ignition.

***** Section 8 - Exposure Controls / Personal Protection *****

Exposure Guidelines

A: General Product Information

Follow all applicable exposure limits.

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B: Component Exposure Limits

Toluene (108-88-3)

ACGIH: 50 ppm TWA
skin - potential for cutaneous absorption
OSHA: 100 ppm TWA; 375 mg/m3 TWA
150 ppm STEL; 560 mg/m3 STEL
NIOSH: 100 ppm TWA; 375 mg/m3 TWA
150 ppm STEL; 560 mg/m3 STEL

Hexane (110-54-3)

ACGIH: 50 ppm TWA
skin - potential for cutaneous absorption
OSHA: 500 ppm TWA; 1800 mg/m3 TWA
NIOSH: 50 ppm TWA; 180 mg/m3 TWA

Heptane (n-) (142-82-5)

ACGIH: 400 ppm TWA
500 ppm STEL
OSHA: 500 ppm TWA; 2000 mg/m3 TWA
NIOSH: 85 ppm TWA; 350 mg/m3 TWA
C 440 ppm; C 1800 mg/m3 (15 min)

Engineering Controls

Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces. Special care must be taken to avoid inhalation exposure when using this product at high temperatures.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear chemical goggles; face shield (if splashing is possible).

Personal Protective Equipment: Skin

Use impervious gloves. Use of protective coveralls and long sleeves is recommended.

Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively remove vapors or mists, appropriate NIOSH approved respiratory protection must be provided.

Personal Protective Equipment: General

Use good industrial hygiene practices in handling this material.

*** Section 9 - Physical & Chemical Properties ***

Appearance: Amber yellow liquid.	Odor: Typical solvent odor
Physical State: Liquid	pH: Not available
Vapor Pressure: Not available	Vapor Density: Heavier than air
Boiling Point: 149°-231°F	Melting Point: Not available
Solubility (H2O): Insoluble	Specific Gravity: 0.86555
Evaporation Rate: Faster than n-Butyl Acetate	Weight % Volatile: 84.9% (vol)
	Flash Point: 0° F (-19° C)

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Avoid open flame and excessive temperatures. Keep away from ignition sources and incompatible materials.

Incompatibility

This product may react with strong acids, strong bases and oxidizing agents. Avoid extreme heat which can result in thermal decomposition releasing toxic gases.

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Hazardous Decomposition

Upon decomposition this product may yield smoke, fumes, aldehydes, carbon monoxide, carbon dioxide and other low molecular weight hydrocarbons.

Hazardous Polymerization

Hazardous polymerization will not occur.

*** Section 11 - Toxicological Information ***

Acute Toxicity

A: General Product Information

No information available for the product.

Vapors may be irritating to the skin, eyes and respiratory system. Overexposure to this product may cause central nervous system (CNS) depression with symptoms including nausea, vomiting, weakness, dizziness, giddiness, loss of coordination and judgement. Severe overexposure may cause coma and death due to respiratory failure.

Intentional misuse by deliberately concentrating and inhaling vapor may be harmful or fatal.

Continued overexposure to toluene may produce nervous system damage including muscle tingling, numbness, coma and death. This solvent may pass through intact skin producing toxicities, and may also produce cardiac sensitization as well as damage to the liver, kidneys and bone marrow. Excessive inhalation of solvent vapors may produce sudden death due to cardiac sensitization. It has been reported in experimental rats that hexane acted synergistically with toluene to induce hearing loss in high airborne concentrations.

N-hexane is a mild irritant and CNS depressant in acute exposure, but its principal effects are damage to the sensory and motor peripheral nerves.

Heptane causes eye, skin, and respiratory irritation. Inhalation causes fatigue, incoordination, hyperactivity, tremors, and other CNS effects. Ingestion causes diarrhea, slight CNS depression, difficulty breathing, and tremors. Some components of this mixture have produced kidney damage in rats in a subchronic oral laboratory study. Aspiration of the liquid may result in chemical pneumonitis.

B: Component Analysis - LD50/LC50

Toluene (108-88-3)

Inhalation LC50 Rat : 49 gm/m³/4H
Inhalation LC50 Mouse : 400 ppm/24H
Oral LD50 Rat : 636 mg/kg
Dermal LD50 Rabbit : 14100 uL/kg

Hexane (110-54-3)

Inhalation LC50 Rat : 48000 ppm/4H
Oral LD50 Rat : 28710 mg/kg

Heptane (n-) (142-82-5)

Inhalation LC50 Rat : 103 gm/m³/4H

Carcinogenicity

A: General Product Information

No information available for this product.

B: Component Carcinogenicity

Toluene (108-88-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71, 1999; Monograph 47, 1989 (Group 3 (not classifiable))

Epidemiology

No information available for this product.

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Neurotoxicity

No information available for this product.

Toluene may cause central nervous system depression which produces lightheadedness, nausea, headache and ataxia at low doses and confusion behavioral and intelligence effects, coma and death at high doses. Repeated exposure to toluene has a cumulative effect on the nervous system. The neurological effects of chronic exposure to high levels of toluene gradually progress to an irreversible state. Besides effects on behavior and intelligence, degeneration of the optic nerve and nerve deafness have also been reported in excessive exposure.

This product contains significant amounts of n-hexane, which can damage the peripheral nervous system and produce paralysis, numbness, or tingling in the extremities.

Mutagenicity

No information available for the product.

Toluene was not mutagenic in the Ames Salmonella/microsome assay. The results of chromosomal assays have been mixed. In vitro sister chromatid exchange and chromosome aberrations using human lymphocytes have been both positive and negative.

Teratogenicity

No information available for the product.

Women exposed to toluene in laboratory work had a approximately 5-fold increased risk of spontaneous abortions, without an increase in birth defects. Intentional and deliberate abuse of toluene has produced birth defects that include microencephaly, CNS deficiencies, and facial abnormalities, as well as disturbances in growth. The spectrum of defects in children of women who have abused toluene and other solvents has been called Fetal Solvent Syndrome. Several animal studies using rats, mice, and rabbits have shown that exposure to toluene during gestation has caused fetotoxicity, fetal biochemical/behavioral changes, and developmental effects.

n-hexane caused degeneration of the testes in experimental rats.

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

No information available for product. Organic solvents may produce significant toxicity to aquatic organisms and ecosystems.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Toluene (108-88-3)

Test & Species

LC50 (96 hr) fathead minnow (1 day old) 25.0-36.0 mg/L.

LC50 (96 hr) rainbow trout 24.0 mg/L.

LC50 (96 hr) bluegill 24.0 mg/L.

EC50 (30 min) Photobacterium 19.7 mg/L

phosphoreum Microtox test.

EC50 (48 hr) water flea 11.3-19.6 mg/L.

EC50 (48 hr) water flea 310-313 mg/L.

Conditions

Flow-through, 25 °C, pH 8.3, 80.0 mg/L CaCO₃.

Static, 15 °C, pH 7.2-7.5, 40.0-50.0 mg/L CaCO₃.

Static, 25 °C, pH 7.5, 20.0 mg/L CaCO₃.

Hexane (110-54-3)

Test & Species

LC50 (96 hr) rainbow trout 4.14 mg/L.

LC50 (96 hr) fathead minnow 5.10 mg/L.

LC50 (96 hr) bluegill 4.12 mg/L.

LC50 (48 hr) water flea 3.87 mg/L.

Conditions

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Heptane (n-) (142-82-5)

Test & Species

	Conditions
LC50 (24 hr) goldfish	4.0 mg/L.
LC50 (24 hr) mosquito fish	4900 mg/L.
LC50 (96 hr) cichlid fish	375.0 mg/L.

Environmental Fate

No information available for the product.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

If discarded as supplied, this product is considered a RCRA ignitable waste, D001. Waste should be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

Toluene (108-88-3)

RCRA: waste number U220

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

*** Section 14 - Transportation Information ***

US DOT, IATA/ICAO Information

Shipping Name: Adhesives (Contains: Toluene , Hexane , Heptane (n-))

Hazard Class: 3

UN/NA #: UN1133

Packing Group: II

Required Label(s): Flammable Liquid

Additional Info.: The Reportable Quantity for Hexane is 5000 lbs.(2270 kg). For shipments, in a single container, exceeding the RQ for Hexane RQ must follow the proper shipping name. If shipping by passenger aircraft the container can not be larger than 5L, for cargo aircraft, container can be no larger than 60L.

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

No additional information.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Toluene (108-88-3)

SARA 313: form R reporting required for 1.0% de minimis concentration

CERCLA: final RQ = 1000 pounds (454 kg)

Hexane (110-54-3)

SARA 313: form R reporting required for 1.0% de minimis concentration

CERCLA: final RQ = 5000 pounds (2270 kg)

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State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements. This product contains trace amounts (<0.1%) of formaldehyde.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	Yes
Hexane	110-54-3	No	Yes	Yes	Yes	Yes	Yes
Heptane (n-)	142-82-5	Yes	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Other Regulations

A: General Product Information

No additional information.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Toluene	108-88-3	Yes	Yes	Yes
Hexane	110-54-3	Yes	Yes	Yes
Heptane (n-)	142-82-5	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	
Toluene	108-88-3	1%; English Item 1578; French Item 1622
Hexane	110-54-3	1%; English Item 828; French Item 965
Heptane (n-)	142-82-5	1%; English Item 806; French Item 940

*** Section 16 - Other Information ***

Date of Previous MSDS: April 4, 2007

Changes Since Previous MSDS: Section 1 – Product name change and company address change.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

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***** Disclaimer *****

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