

GenFlex Roofing Systems Material Safety Data Sheet

Material Name: G-400 Seam Adhesive

February 5, 2008

*** 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 black liquid. This product may be harmful or fatal if swallowed, inhaled or absorbed through the skin. 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 judgment. Severe overexposure may cause coma and death due to respiratory failure. This product may contain carbon black which can cause lung damage; however, these effects should not arise unless the product is dried, a respirable airborne dust is formed, and prolonged and repeated breathing of this dried material occurs. This product may contain 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	40-60
64742-89-8	Solvent naphtha (petroleum), light aliphatic	10-30
	Hydrocarbon Resin	0-12
Not Available	Butyl Rubber	0-10
	Halobutyl Rubber	0-6
110-54-3	Hexane	0-6
Not Available	Polyurea	0-5
1330-20-7	Xylenes (o-, m-, p- isomers)	0-5
100-41-4	Ethyl benzene	0-1
1333-86-4	Carbon black	0-0.5

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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.

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: <20° F (<-6.7° C)

Upper Flammable Limit (UFL): 7.0%

Auto Ignition: Not available

Rate of Burning: Not available

General Fire Hazards

Product is a flammable liquid. Highly toxic fumes and gases will be released upon combustion. 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.

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.

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*** 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.

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

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: 100 ppm TWA
150 ppm STEL
OSHA: 100 ppm TWA; 435 mg/m³ TWA
150 ppm STEL; 655 mg/m³ STEL
NIOSH: 100 ppm TWA; 435 mg/m³ TWA

Ethyl benzene (100-41-4)

ACGIH: 100 ppm TWA
125 ppm STEL
OSHA: 100 ppm TWA; 435 mg/m³ TWA
125 ppm STEL; 545 mg/m³ STEL
NIOSH: 100 ppm TWA; 435 mg/m³ TWA
125 ppm STEL; 545 mg/m³ STEL

Carbon black (1333-86-4)

ACGIH: 3.5 mg/m³ TWA
OSHA: 3.5 mg/m³ TWA
NIOSH: 0.1 mg PAH's/m³ [carbon black in presence of polycyclic aromatic hydrocarbons (PAHs)];
NIOSH Potential Occupational Carcinogen - see Appendix A; see Appendix C for
supplementary exposure limits

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.

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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 and prevent buildup of dusts or processing fumes, appropriate NIOSH approved respirator must be provided.

Personal Protective Equipment: General

Use good industrial hygiene practices in handling this material.

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

Appearance:	Black liquid	Odor:	aromatic solvent odor
Physical State:	Liquid	pH:	Not available
Vapor Pressure:	Not available	Vapor Density:	Not available
Boiling Point:	140-220°F (60-104.4°C)	Melting Point:	Not available
Solubility (H₂O):	Insoluble	Specific Gravity:	0.84-0.93
Evaporation Rate:	Not available	Weight % Volatile:	65-77%
Weight % VOC:	5.154-5.450 lbs./Gal, 617-654 g/l	Flash Point:	<20° F (<-6.7° 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.

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 judgment. Severe overexposure may cause coma and death due to respiratory failure. Intentional misuse by deliberately concentrating and inhaling vapor may be harmful or fatal. 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.

Chronic overexposure to toluene may produce nervous system damage including muscle tingling and numbness. 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.

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Chronic overexposure to xylene may produce headache, tremors, apprehension, memory loss, loss of appetite, nausea, irritability, thirst, anemia, mucosal bleeding, enlarged liver, kidney damage, heart arrhythmias and hyperplasia as well as irreversible damage to the central nervous system.

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

Xylenes (o-, m-, p- isomers) (1330-20-7)

Inhalation LC50 Rat : 5000 ppm/4H
Oral LD50 Rat : 4300 mg/kg
Dermal LD50 Rabbit : >1700 mg/kg

Ethyl benzene (100-41-4)

Oral LD50 Rat : 3500 mg/kg
Dermal LD50 Rabbit : 17800 uL/kg

Carbon black (1333-86-4)

Oral LD50 Rat : >15400 mg/kg
Dermal LD50 Rabbit : >3 gm/kg

Carcinogenicity

A: General Product Information

No information available for the product. Carbon black produced lung tumors in rats chronically exposed to high concentrations via inhalation. However, this hazard should not arise unless the product is dried, a respirable airborne dust is formed, and prolonged and repeated breathing of this dried material occurs. Ethyl benzene has been found to produce cancer in limited animal testing; however, ethyl benzene is not generally considered to be an animal or human carcinogen.

B: Component Carcinogenicity

Toluene (108-88-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 47, Monograph 71; 1998 (Group 3 (not classifiable))

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 47, Monograph 71; 1998 (Group 3 (not classifiable))

Carbon black (1333-86-4)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
OSHA: Monograph 65; 1996
{ IARC - Group 2B (Possibly carcinogenic to humans) }
IARC: Monograph 65; 1996 (Group 2B (Possibly carcinogenic to humans))
NIOSH: occupational carcinogen

Epidemiology

No information available for this product. Chronic excessive inhalation of solvent vapors may produce sudden death due to cardiac sensitization to epinephrine.

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Neurotoxicity

No information available for this product. n-hexane, xylene, toluene and ethyl benzene are central nervous system depressants which produce lightheadedness, nausea, headache and ataxia at low doses and confusion behavioral and intelligence effects, coma and death at high doses. Chronic overexposure to solvent vapors may produce symptoms including permanent damage to the central nervous system (e.g., chronic headaches, memory loss, behavioral changes, hallucinations). 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. Sister chromatid exchanges and chromosome aberrations were elevated in lymphocytes from laboratory workers exposed to hexane, xylene, toluene, ethyl benzene and other solvents.

Teratogenicity

No information available for the product. During pregnancy, chronic inhalation of toluene above recommended exposure limits may cause effects similar to fetal alcohol syndrome, including birth defects, stunted fetal growth, and an increased incidence of premature and still births. n-hexane caused degeneration of the testes in experimental rats. Ethylbenzene caused decreased skeletal development, extra ribs, tail misplacement, and decreased weight gain in fetal rats. Xylene crosses the placenta and has elevated the risk of spontaneous abortion in women exposed during their first trimester. Although xylene is not considered teratogenic, it is embryotoxic and fetotoxic, particularly at doses which cause maternal toxicity.

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

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

EC50 (30 min) Photobacterium 19.7 mg/L

phosphoreum Microtox test.

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.

Environmental Fate

No information available for the product.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

If discarded, this product is considered a RCRA ignitable waste, D001.

B: Component Waste Numbers

Toluene (108-88-3)

RCRA: waste number U220

Xylenes (o-, m-, p- isomers) (1330-20-7)

RCRA: waste number U239; (Ignitable waste, Toxic waste)

Disposal Instructions

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

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*** Section 14 - Transportation Information ***
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US DOT Information

Shipping Name: Adhesives

Hazard Class: 3

UN/NA #: UN1133

Packing Group: III

Required Label(s): FLAMMABLE LIQUID

Additional Info.: Additional information: The assignment of a Packing Group III is based on a viscosity test result of a flow time of 444 seconds a flash point of <20°F and a jet diameter of 6 mm.

For inner packagings not over 5.0 L (1.3 gallon) this material would qualify for a limited quantity exception. 49 CFR 173.150 (b)(2) states that flammable and combustible liquids are excepted from labeling requirements. For flammable liquids in Packing Group III inner packagings not over 5.0 L (1.3 gallon) net capacity each, packed in strong outer packagings.

TDG Information

Shipping Name: ADHESIVES

Hazard Class: 3

UN/NA #: UN1133

Packing Group: III

Required Label(s): Flammable Liquid

Additional Info.: Additional information: The assignment of a Packing Group III is based on a viscosity test result of a flow time of 444 seconds a flash point of <20°F and a jet diameter of 6 mm.

International Transportation Regulations

International Transportation Regulations

International Air Transportation Association (IATA):

Adhesives

Hazard Class: 3

UN/NA #: UN1133

Packing Group: III

Required Label(s): Flammable Liquid

International Maritime Dangerous Goods (IMDG) Code:

Adhesives

Hazard Class: 3.3

UN/NA #: UN1133

Packing Group: III

Required Label(s): Flammable Liquid

Additional information: The assignment of a Packing Group III is based on a viscosity test result of a flow time of 444 seconds a flash point of <20°F and a jet diameter of 6 mm.

*** Section 15 - Regulatory Information ***
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US Federal Regulations

A: General Product Information

No additional information.

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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

Xylenes (o-, m-, p- isomers) (1330-20-7)

SARA 313: form R reporting required for 1.0% de minimis concentration
CERCLA: final RQ = 100 pounds (45.4 kg)

Ethyl benzene (100-41-4)

SARA 313: form R reporting required for 1.0% de minimis concentration
CERCLA: final RQ = 1000 pounds (454 kg)

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements. This product may contain trace amounts (<0.1%) of benzene (71-43-2).

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
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	Yes	Yes	Yes	Yes	Yes
Ethyl benzene	100-41-4	Yes	Yes	Yes	Yes	Yes	Yes
Carbon black	1333-86-4	Yes	No	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.

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B: Component Analysis – Inventory

Component	CAS #	TSCA	DSL	EINECS
Toluene	108-88-3	Yes	Yes	Yes
Solvent naphtha (petroleum), light aliphatic	64742-89-8	Yes	Yes	Yes
Hexane	110-54-3	Yes	Yes	Yes
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	Yes	Yes
Ethyl benzene	100-41-4	Yes	Yes	Yes
Carbon black	1333-86-4	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

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

Component	CAS #	Minimum Concentration
Toluene	108-88-3	1% item 1578 (1622)
Hexane	110-54-3	1% item 828 (965)
Ethyl benzene	100-41-4	0.1% item 697 (854)

***** Section 16 - Other Information *****

Date of Previous MSDS: April 3, 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

***** Disclaimer *****

The information contained herein is based on data considered accurate which has been obtained from other companies and organizations. However, no warranty or representation is expressed or implied that the information, is accurate, complete or representative. GenFlex Roofing Systems, LLC, a subsidiary of Bridgestone Firestone Diversified Products, LLC, assumes no responsibility for injury to the buyer, the buyer's employees, or any third persons, if reasonable safety procedures are not followed. Additionally, GenFlex Roofing Systems, LLC assumes no responsibility for injury to buyer, the buyer's employees, or any third persons caused by abnormal use of this material, even if reasonable safety procedures are followed.