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# MATERIAL SAFETY DATA SHEET

Version 1.0  
03NOV2008

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## 1. Product and Company Information

Product Name **StressKote Brittle Coating Thinner (StressKote Thinner)**  
CAS# Solution

Company StressKote Brittle Coatings, LLC  
Address S14 W33511 Hwy18, Bldg C  
Delafield WI 53018 US

Technical Information 262-510-9568 or 414-940-1193  
Fax 262-968-3050  
Emergency 414-940-1193 or 414-322-3884  
Product Use Thinner for coating used in mechanical stress analysis  
OSHA Status Hazardous

Shipping Requirements (USDoT 49CFR, IATA)  
Proper Shipping Name Dichloromethane Solution  
Hazard Class, Division 6.1  
Identification Number UN1593

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## 2. Composition/Information on Ingredients

Wt %	Substance	CAS#
88-93	dichloromethane (methylene chloride)	75-09-2
7-12	toluene (toluol, methylbenzene)	108-88-3

VOC: 100 wt %

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## 3. Hazards Identification

### Emergency Overview

#### OSHA Hazards

Toxic. Target Organ Effect, Harmful by ingestion, Irritant, Possible carcinogen and teratogen. May cause harm to the unborn child.

#### Target Organs

Liver, kidneys, pancreas, eyes, blood

### HMIS Classification

Health Hazard 2

Flammability 1 (Self-extinguishing liquid. See section 5)  
Physical Hazards 0

**NFPA Rating**

Health Hazard 2  
Fire 1 (Self-extinguishing liquid)  
Reactivity 0

**Potential Health Effects**

Inhalation May be harmful if inhaled, causing respiratory tract irritation. The liquid produces vapors which have a sweet, chlorinated hydrocarbon and pungent, aromatic hydrocarbon odor. These vapors, which are more dense than air, may cause at levels around 1000 ppm, drowsiness, dizziness, headache, nausea and vomiting, and if allowed to accumulate in poorly ventilated areas to concentrations as low as 10,000 ppm, can cause CNS depression, cardiac arrhythmia, unconsciousness and death. Dichloromethane is metabolized in the body producing carbon monoxide which increases and sustains carboxyhemoglobin levels in the blood, reducing the blood's oxygen-carrying capacity.

Skin May be harmful if absorbed through skin. May cause skin irritation and discoloration, with prolonged contact causing redness, swelling and burns. Severe response may be experienced on covered skin (under clothing, gloves or jewelry), with attendant drying and flaking of the skin. May cause dermatitis.

Eyes May cause eye irritation, conjunctivitis, and reversible corneal injury.

Ingestion Low toxicity if small amounts are swallowed. Larger amounts will cause abdominal pain (gastrointestinal discomfort), nausea, diarrhea, and through aspiration may engender pneumonitis.

Cancer None of the components of the thinner is believed to pose a measurable carcinogenic risk to man when handled as recommended.

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**4. First Aid Measures**

**General advice**

Call the StressKote emergency numbers and consult a physician. Have a copy of this MSDS available for use by emergency response personnel.

**If inhaled**

If any of the potential health effects attributed to inhalation are observed, move the person into fresh air immediately. If breathing is labored, give oxygen. If not breathing, perform CPR. Consult a physician.

**In case of skin contact**

If any StressKote Thinner contacts the skin, immediately wipe the area with a clean cloth, then remove all residuals with soap and water. Consult a physician. Heavily contaminated clothing must be removed immediately and taken to a well-ventilated area to allow for the safe evaporation of the dichloromethane and toluene.

**In case of eye contact**

If any of the thinner splashes into the eye(s), or, for example, is transferred to the eye from a contaminated finger,

then immediately flush the eye(s) [remove contact lenses] with clean water for 15 minutes, lifting the eye lids as necessary to ensure a complete rinse. Consult a physician, preferably an ophthalmologist.

**If swallowed**

Never give anything by mouth to an unconscious person. Do not induce vomiting, as vomiting will significantly increase the risk of aspiration causing pneumonitis. Rinse mouth with clean water. Consult a physician and transport the victim to an emergency care facility immediately.

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**5. Firefighting Measures**

**Flammable properties**

Flash Point      None

**Self-extinguishing Liquid**

StressKote Thinner does not exhibit a TCT flash point as defined by ASTM D56. A green halo, characteristic of thermal decomposition of dichloromethane is observed around the test flame even at temperatures approaching 0°F.

Flammable limits

No determination made.

Autoignition temperature

Literature values for the autoignition temperatures of dichloromethane and toluene are 556°C (1,033°F) and 536°C (997°F), respectively. A propane torch flame applied to the surface of the thinner will produce red-orange, sooty flames attributable to burning toluene. However, upon removal of the torch flame, the liquid immediately self-extinguishes.

Hazardous combustion products

Carbon dioxide, carbon monoxide, hydrogen chloride, phosgene, smoke, fumes, unburned dichloromethane and hydrocarbons, aldehydes.

Suitable extinguishing media

Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Personal protective equipment

Wear self-contained breathing apparatus, if necessary, and protective clothing and goggles to prevent contact with skin and eyes.

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**6. Accidental Release Measures**

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapor accumulations in low areas, e.g., workpits and basements.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not allow spillage to enter drains, sewers, and natural waterways.

Methods for cleaning up

Do not touch with unprotected hand or walk through spilled material. Contain spillage, then collect with clean absorbant towelling or sand, earth, diatomaceous earth, or vermiculite, and place the sorbed material in a container which will allow for the evaporation of the thinner in a well-ventilated, unoccupied area.

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**7. Handling and Storage**

## Handling

General handling	Avoid contact with eyes, skin and clothing. Avoid breathing vapor, mist or gas. Do not swallow. Use only with adequate ventilation. Do not enter confined spaces in which StressKote Thinner is being used or has recently been used, unless the space is adequately ventilated. As the vapors from the thinner are more dense (heavier) than air, lethal concentrations of vapors can collect in low, confined and unventilated spaces such as tanks, workpits, small rooms, and basements. Do not enter these confined spaces where the thinner vapors are suspected unless special breathing apparatus is used and an observer is present for monitoring and assistance. Wash thoroughly after handling. Keep containers tightly closed when not in use. For the storage of the thinner, use the metal containers provided in the original packaging or an equivalent container. When using the product, do not eat, drink or smoke. Take normal measures for preventative fire protection, which includes keeping sources of ignition (e.g, open flames and incensive electrostatic discharges) away from the thinner and its vapors.
Other precautions	The StressKote Thinner containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near partial or empty containers. Uncapped emptied containers awaiting proper disposal should be placed in well-ventilated areas free of ignition hazards.
Storage	Store tightly closed containers of the thinner in a clean, dry, cool, well-ventilated place away from direct sunlight. Containers which have been opened must be carefully resealed and kept upright to prevent leakage.

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## 8. Exposure Controls/Personal Protection

### Components with workplace control parameters

Abbreviations:	CAS	Chemical Abstracts Service, Registry Number
	ACGIH	US American Conference of Governmental and Industrial Hygienists
	BEI	Biological Exposure Index
	STEL	Short-term Exposure Limit
	TLV TWA	Threshold Limit Value Time-Weighted Average
	NIOSH	US Department of Health and Human Services - National Institute for Occupational Safety and Health
	REL	NIOSH Recommended Exposure Limit
	RTECS	Registry of Toxic Effects of Chemical Substances
	OSHA	US Department of Labor-Occupational Safety and Health Administration
	CEIL	Ceiling Limit
	PEL	Permissible Exposure Limit (PEL)
	MSHA	US Department of Labor, Mine Safety and Health Administration
	IARC	International Agency for Research on Cancer
	NTP	National Toxicology Program

Component	CAS No.	Control	Parameter	Effective Date	Basis
dichloromethane (methylene chloride)	75-09-2	TWA	50 ppm 174 mg/m <sup>3</sup>	1996-05-18	ACGIH TLV and BEI
		STEL	125 ppm	1997-04-04	OSHA 29CFR1910.1000 Z-1-A
		TWA	25 ppm	1997-04-04	OSHA 29CFR1910.1000 Z-1-A
		Action Level-Skin	12.5 ppm		OSHA
toluene	108-88-3	TWA	50 ppm 188 mg/m <sup>3</sup>	1996-05-18	ACGIH TLV and BEI
		TWA	100 ppm 375 mg/m <sup>3</sup>	1989-03-01	OSHA 29CFR1910.1000 Z-1-A
		STEL	150 ppm 560 mg/m <sup>3</sup>	1993-06-30	OSHA 29CFR1910.1000 Z-1-A
		TWA	200 ppm	1993-06-30	OSHA 29CFR1910.1000 Z-2
		CEIL	300 ppm	1993-06-30	OSHA 29CFR1910.1000 Z-2

### Personal protective equipment

Engineering controls	Provide good ventilation (typically 10 air changes per hour) or other engineering controls to maintain airborne concentrations of vapors or mists below the applicable exposure limits indicated in the table above. Exhaust systems should be designed to move the air away from the source of vapor/mist generation and personnel. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near the work area where the StressKote Thinner is used.
Respiratory protection	Where risk assessment concludes an air-purifying respirator is appropriate, use a full-face respirator with a multi-purpose combination respirator cartridges as a backup to engineering controls (e.g., ventilation). If the respirator is the sole means of protection, use a full-face self-contained breathing apparatus or supplied air respirator. Use respirators, accessories, and replaceable components which are tested and approved under germane government standards (e.g., NIOSH).
Hand protection	Avoid skin contact. Use heavy duty gloves made of chemical resistant materials such as Viton®, or butyl rubber. Wash hands with plenty of mild soap or dish detergent and water before eating, drinking, smoking, use of toilet facilities, or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners.

Eye protection	Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when misting, splashing, or spraying of the thinner. If exposure causes eye discomfort, use a full-face respirator.
Body protection	Use protective clothing chemically resistant to the thinner. Selection of specific items such as face shield, boots, apron, or a full body suit will depend upon the product's use. If any of the thinner contacts the skin, immediately wipe the area with a clean cloth, then remove all residuals with soap and water. Consult a physician. Heavily contaminated clothing must be removed immediately and be taken to a well-ventilated area to allow for the safe evaporation of the dichloromethane and toluene.
Ingestion	Avoid ingestion of even very small amounts. Do not consume or store food or tobacco in the work area. Wash hands and face before eating, drinking or smoking.

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## 9. Physical and Chemical Properties

Appearance	StressKote Thinner is a clear (non-turbid), colorless liquid, as supplied.
Odor	The thinner has a sweet, chlorinated hydrocarbon and pungent, aromatic hydrocarbon odor.
pH	No measurements made.
Melting point	No measurement made of the melting (freezing) point for the liquid.
Boiling point	42.1°C (108°F) at 760 torr (normal bp). Note: As dichloromethane and toluene apparently do not form an azeotrope, 42.1°C more accurately marks the beginning of the boiling range for the StressKote Thinner, ending with the normal boiling point for pure toluene at 110.6°C (231°F).
Flash point	None                      StressKote Thinner does not exhibit a TCT flash point as defined by ASTM D56. A green halo, characteristic of thermal decomposition of dichloromethane is observed around the test flame even at temperatures approaching 0°F.
Ignition temperature	No determination made
Lower explosion limit	No determination made
Upper explosion limit	No determination made
Vapor pressure	43 kPa (320 torr, 0.42 atm) absolute at 20°C (68°F) and 87 kPa (650 torr, 0.86 atm) absolute at 37.8°C (100°F).
Vapor density (air = 1)	3
Evaporation rate (acetone =1)	2
Water solubility	The Stresskote Thinner is miscible with water at concentrations less than 2% by

weight (calculated).

Density (20°C) 1.26 ± 0.02 g/ml (H<sub>2</sub>O 1.0 g/ml)

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## 10. Stability and Reactivity

Storage stability	Stable under recommended storage conditions. Keep containers of StressKote Thinner tightly closed in a clean, dry, cool, well-ventilated place away from direct sunlight. Containers which have been opened must be carefully resealed and kept upright to prevent leakage.
Conditions to avoid	Heat, flames and sparks.
Materials to avoid	Alkali metals (Na, K), strong oxidizing agents, strong bases, amines, powdered zinc, aluminum and magnesium. Water contamination may cause corrosion of ferrous metals due to the formation of hydrochloric acid.
Hazardous decomposition products	Hazardous decomposition products formed under fire conditions: Carbon dioxide, carbon monoxide, hydrogen chloride, phosgene, smoke, fumes, unburned dichloromethane and hydrocarbons, aldehydes.
Hazardous reactions	Vapors in large, enclosed spaces may form explosive mixtures with air. The thinner does not undergo exothermic polymerization.

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## 11. Toxicological Information

*Dichloromethane and, toluene, the two hazardous components of StressKote Thinner, have each a unique set of oral, inhalation, and dermal toxicities. For each of the toxicity categories, the compound which has the highest value reported in the literature is considered to establish the toxicity of the mixture. Additional toxicity data may be available upon request.*

### Acute toxicity

Ingestion (Oral)	LD50, rat	1,500 mg/kg	(dichloromethane)
Inhalation	LC50, rat, 4hr	12,500 mg/m <sup>3</sup>	(toluene)
Dermal	LD50, rabbit	12,196 mg/kg	(toluene)

### Irritation and corrosion

Skin	rabbit	skin irritation, 24 hr.	(dichloromethane)
Eyes	rabbit	severe irritation, 24 hr	(toluene)

**Sensitization** No data available

### Chronic exposure

Carcinogenicity, rat	inhalation	(dichloromethane)
Tumorigenic:	Carcinogenic by RTECS criteria. Endocrine: Tumors	
Genotoxicity in vivo, rat	oral	(dichloromethane)
DNA damage	(dichloromethane)	
Developmental toxicity, rat	oral	Effects on embryo or fetus: Fetotoxicity (toluene)
Reproductive toxicity, rat	inhalation	Paternal effects: Spermatogenesis, including genetic material, sperm morphology, motility, and count (toluene)

StressKote Thinner contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, OSHA, or EPA classification.

IARC: Group 2 The agent is possibly carcinogenic to humans (dichloromethane)  
 NTP: Reasonably anticipated to be a human carcinogen (dichloromethane)  
 OSHA: 19.101.052 (dichloromethane)

***None of the components of StressKote Thinner is believed to pose a measurable carcinogenic risk to man when handled as recommended.***

**Signs and symptoms of exposure**

Dichloromethane	Dichloromethane is metabolized in the body producing carbon monoxide which increases and sustains carboxyhemoglobin levels in the blood, reducing the oxygen-carrying capacity of the blood. It acts as a simple asphyxiant by displacing air. Anaesthetic effects include difficulty in breathing, headache, and dizziness. Prolonged or repeated contact with skin may cause defatting, dermatitis. Contact with the eyes can cause redness, blurred vision, conjunctivitis, and tearing. Effects due to ingestion may include gastrointestinal discomfort, central nervous system depression, paresthesia, drowsiness, convulsions, pulmonary edema through aspiration. Effects may be delayed.
Toluene	Lung irritation, chest pain, pulmonary edema. Inhalation studies on toluene have demonstrated the development of inflammation and ulcerous lesions of the penis, prepuce, and scrotum in animals.

**Potential health effects** See Section 3

**12. Ecological Information**

**Elimination information (persistence and degradability)**

StressKote Thinner **should not** be considered biodegradable. The bioconcentration factor (BCF) for dichloromethane is 2- 40, and it has a very high potential for soil mobility. No other data are available.

**Ecotoxicity effects**

Toxicity to fish	(dichloromethane)	96 hr LC50	fathead minnow	193 mg/l
		96 hr NOEC	sheepshead minnow	130 mg/l
	(toluene)	96 hr LC50	bluegill	74-340 mg/l
		96 hr LC50	rainbow trout	7.63 mg/l

7 d NOEC	fathead minnow	5.44 mg/l
7 d LOEC	fathead minnow	8.04 mg/l

Toxicity to daphnia

(dichloromethane)	48 hr EC50	water flea	1,682 mg/l
(toluene)	24 hr EC50	water flea	8 mg/l

**13. Disposal Considerations**

**Product** DO NOT DUMP UNUSED STRESSKOTE THINNER INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. Observe all federal, state, and local environmental regulations. Regulations may vary with location. Waste characterization and compliance with applicable laws are the sole responsibility of the waste generator. If you characterize unused StressKote Thinner as waste, then contact a licensed professional waste disposal service to dispose of the material. StressKote Thinner may be destroyed by admixing with a combustible solvent and burning the mixture in a chemical incinerator equipped with an afterburner and scrubber. StressKote Brittle Coatings, LLC has no control over the management practices or procedures of parties handling or using StressKote Thinner.

**Contaminated packaging** Allow thinner wetted packaging to dry in an unoccupied, well-ventilated area, free of ignition sources.

**14. Transport Information**

Shipping descriptions may vary based upon mode of transport, quantities, package size, origin and/or destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

<b>US DoT</b>	UN Number: 1593	Class: 6.1	Packing group: III
	Proper shipping name:	Dichloromethane Solution	
<b>IMDG</b>	UN Number 1593	Class: 6.1	Packing group: III
	Proper shipping name:	Dichloromethane Solution	EMS-No: F-A, S-A
	Marine pollutant:	No	
<b>IATA</b>	UN Number: 1593	Class: 6.1	Packing group: III
	Proper shipping name:	Dichloromethane Solution	

**15. Regulatory Information**

**OSHA Hazards** Toxic. Target Organ Effect (liver, kidneys, pancreas, eyes, blood), Harmful by ingestion, Irritant, Possible carcinogen and tetratogen. May cause harm to unborn child.

**TSCA Status** Dichloromethane and toluene are TSCA Inventory items.

**CEPA DSL Status** Dichloromethane and toluene are listed on the Canadian Domestic Substances List (DSL) under the Canadian Environmental Protection Act (CEPA).

**SARA 302 Components** No chemicals in StressKote Thinner are subject to the reporting requirements of the Superfund Amendments and Reauthorization Act, Title III, Section 302.

**SARA 313 Components** Dichloromethane and toluene are subject to SARA Section 313 reporting requirements, with De Minimis Limits of 0.1 and 1.0, respectively.

**SARA 311/312 Hazards** StressKote Thinner contains both Acute and Chronic Health Hazards

**Massachusetts Right To Know Components** Dichloromethane, toluene

**Pennsylvania Right To Know Components** Dichloromethane, toluene

**New Jersey Right To Know Components** Dichloromethane, toluene

**California Proposition 65 Components** Dichloromethane, toluene  
WARNING! This product contains a chemical known in the State of California to cause cancer.

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**16. Other Information**

**Disclaimer** This product, StressKote Thinner, is for industrial testing and/or R&D use only. StressKote Brittle Coatings, LLC does not approve the use of this product for direct sales to the general public. KEEP OUT OF REACH OF CHILDREN. StressKote Brittle Coatings, LLC does not recommend the use of this product in applications or in a manner WHERE: (1) soil or ground water contamination is likely, such as from spillage or intentional discharge to the ground, sink drains, sewers, or septic tanks, (2) inhalation overexposure is likely, such as in confined spaces where there is inadequate ventilation, (3) skin and/or eye contact is likely, (4) direct contact with food, drink or tobacco products is likely, (5) vapor levels and concentrations may represent an explosion hazard, (6) disposal of waste would present an environmental or health risk, or (7) chemical reactivity would pose a danger, e.g., contact with strong alkali or welding flames or sparks.

**Warranty**

StressKote Brittle Coatings, LLC strongly advises each customer or recipient of this MSDS to read and examine it carefully (peruse) and consult appropriate experts, if necessary, to fully understand the data contained and appreciate any hazards and risks associated with this product. The above information is provided in good faith and is believed to be correct as of the effective date shown, but does not purport to be all inclusive and shall be used only as a guide. No warranty nor any guarantee, expressed or implied, is given. Regulatory requirements are subject to change and may differ depending upon location. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented herein pertains to StressKote Thinner, as shipped. Because conditions for use of the product are not under control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. StressKote Brittle Coatings, LLC shall not be held liable for any damage resulting from the handling or use of the product. Copyright 2008 StressKote Brittle Coatings, LLC.