

MATERIAL SAFETY DATA SHEET
SOPRASTOP ADHESIVE

Offerte en français

| WHMIS | PROTECTIVE CLOTHING | TRANSPORT OF DANGEROUS GOODS |
|---|---|------------------------------|
|  |  | NOT REGULATED |

SECTION I: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Use: Non flammable adhesive for vapour barrier.

Formula numbers: 443.1 – 477.1

Manufacturer: Soprema Canada
1675 Haggerty Street
Drummondville (Quebec) J2C 5P7
CANADA
Tel.: 819 478-8163

Distributors: Soprema Inc.
44955 Yale Road West
Chilliwack (B.-C.) V2R 4H3
CANADA
Tel.: 604 793-7100

Soprema USA
310 Quadral Drive
Wadsworth (Ohio) 44281
UNITED STATES
Tel.: 1 800 356-3521

In case of emergency:

SOPREMA (8:00am to 5:00pm): 1 800 567-1492

CANUTEC (Canada) (24h.): 613 996-6666

CHEMTREC (USA) (24h.): 1 800 424-9300

EMERGENCY OVERVIEW!!!

Black liquid with solvent odour. CAUTION! Irritating and/or toxic gases or fumes may be generated by thermal decomposition or combustion such as hydrogen chloride, chlorine and phosgene.

May cause skin, eye and respiratory tract irritation. Harmful or fatal if swallowed. Can cause severe injury if the product is aspirated by lung during ingestion. Inhalation of high concentrations of this product may cause central nervous system (CNS) depression (headache, nausea, dizziness, drowsiness, incoordination and unconsciousness). Contains Trichloroethylene which is a suspect cancer hazard - may cause cancer, based on human information and mutagen - may cause genetic damages, based on animal information.

SECTION II: COMPOSITION AND INFORMATION ON DANGEROUS INGREDIENTS

| NAME | CAS # | % WEIGHT | EXPOSURE LIMIT (ACGIH) | |
|-------------------|-----------|----------|------------------------|-----------------|
| | | | TLV-TWA | TLV-STEL |
| Asphalt | 8052-42-4 | 40-70 | 0.5 mg/m ³ | Not established |
| Trichloroethylene | 79-01-6 | 15-40 | 10 ppm | 25 ppm |

SECTION III: POTENTIAL HEALTH EFFECTS

Effects of Short-Term (Acute) Exposure

INHALATION

Inhalation of vapours of trichloroethylene may be produced during handling of the product. Vapours exposure may cause respiratory tract irritation and CNS depression (headache, dizziness, nausea, fatigue, confusion and coma).

Asphalt:

The inhalation is possible only if the product is heated or if asphalt fumes are generated. Asphalt fumes may be irritating to the nose, throat and upper respiratory tract causing coughing, wheezing and/or shortness of breath. The acute effects of exposure to asphalt fumes include headache, fatigue and reduced appetite. (2)

Trichloroethylene:

Short-term exposure causes irritation of the nose and throat and CNS depression, with symptoms such as drowsiness, dizziness, giddiness, headache, loss of coordination. High concentrations have caused numbness and facial pain, reduced eyesight, unconsciousness, irregular heartbeat and death. Trichloroethylene is noticeable by smell at approximately 82 ppm and above. However, people can become accustomed to the odour and may not smell it until higher concentrations are reached. Very high concentrations have produced death due to CNS effects, and, in rare cases, irregular heartbeat. In one case, pulmonary oedema (a potentially fatal accumulation of fluid in the lungs) was reported. The employee was welding a surface that had been washed in trichloroethylene. The pulmonary oedema likely resulted from exposure to phosgene which is formed upon heating of trichloroethylene. Effects on behaviour and coordination have been observed in some studies. Numbness and discomfort of the face and

jaw weakness (trigeminal nerve effects) and serious visual disturbances, including reduced eyesight and blurred or double vision, have been reported following exposure to high concentrations. Some of the effects may persist for several months. These effects may actually be caused by other chemicals formed when trichloroethylene decomposes in the presence of strong alkaline materials (e.g. dichloroacetylene). Sometimes, permanent nervous system damage and/or liver injury have resulted from severe overexposure. In most cases, the individuals had intentionally inhaled very high concentrations of trichloroethylene for its intoxicating effects. (1)

SKIN CONTACT

The product can cause irritations and dermatitis (itching, inflammation, redness and swelling).

Asphalt:

Asphalt may cause skin irritation. (2)

Trichloroethylene:

Trichloroethylene is a severe skin irritant, based on human and animal evidence. Prolonged contact with the liquid has caused reddening of the skin, irritation and blister formation. The concentrated vapour, especially at elevated temperatures, can also cause severe redness and irritation. Several cases of very severe skin irritation have been reported in employees exposed to unspecified or high concentrations (up to 165 ppm) of trichloroethylene for a relatively short time (up to 5 weeks). In most cases, liver impairment and exposure to other several other potentially harmful chemicals were also reported. Trichloroethylene can be absorbed through the skin. However, significant harmful effects are not expected to occur by this route of exposure. (1)

EYE CONTACT

The splashes may cause eye irritation, and pain. The vapours may cause eye irritation.

Asphalt:

Asphalt may cause eye irritation. (2)

Trichloroethylene:

The liquid is a severe eye irritant, based on limited human information and animal evidence. One report indicates that a splash drop of trichloroethylene caused smarting pain and injury to the surface tissue of the eye. Severe eye irritation, with temporary clouding of the cornea, has been reported in people exposed to vapour concentrations so high they became unconscious. Serious disturbances in eyesight, including reduced eyesight and blurred, double and tunnel vision, have been reported in people with high inhalation exposure. (1)

INGESTION

It is unlikely that toxic amounts of this product would be ingested with normal handling and use. If significant amount of the product were ingested, symptoms as described for inhalation might occur. This product may cause irritation, mouth and throat burns and abdominal pains. The product can be aspirated (inhaled) into the lungs during ingestion or vomiting. Aspiration of even a small amount of liquid could result in a life threatening accumulation of fluid in the lungs. Severe lung damage (oedema), respiratory failure, cardiac arrest and death may result.

Asphalt:

No information available.

Trichloroethylene:

Ingestion causes a burning sensation in the mouth and throat, followed by abdominal pain and signs and symptoms of CNS depression, as described for inhalation exposure above. Accidental ingestion of 30 ml to 500 ml (2 tbsp to 16 ozs) has caused muscle weakness, vomiting and unconsciousness or delirium, with recovery within 2 weeks. Effects on the heart, liver and kidneys have also been reported. In one case, ingestion of less than 50 ml was reported to be fatal due to kidney and liver failure. (1)

Effects of Long-Term (Chronic) Exposure

INHALATION

Asphalt:

No information available.

Trichloroethylene:

Long-term occupational exposure may cause signs and symptoms of CNS depression such as headaches, dizziness, altered mood, loss of memory and inability to concentrate or sleep. These effects have also been related to long-term occupational exposure to other organic solvents and are sometimes generally referred to as "organic solvent syndrome". It is difficult to draw specific conclusions regarding trichloroethylene from the available studies because, in general, a small number of people were studied, exposure levels were not defined, exposure to other potentially harmful chemicals may have occurred at the same time and, in some cases, comparisons were not made to unexposed individuals. Nerves of the face and head (cranial nerves) have been affected by long-term exposure to trichloroethylene or chemicals formed when it decomposes. In particular, the trigeminal nerve, which provides feeling and movement to part of the face, has been affected. To a lesser extent, the optic nerve, which provides sight, has also been affected. Symptoms such as facial numbness, jaw weakness, altered reflexes and facial discomfort have been reported. Vision disturbances, including blurred, double or tunnel vision and poor eyesight, have occasionally been reported following long-term exposure. These effects are caused by impairment of the optic nerve and other cranial nerves. (1)

TARGET ORGANS

Asphalt:

No information available.

Trichloroethylene:

Kidney and liver: There is limited evidence that exposure to trichloroethylene may cause kidney and liver injury in some people following long-term occupational exposure. No firm conclusions can be drawn from the available studies because most only involved a very small number of exposed individuals, exposure levels were not defined and/or there may have been exposure to other potentially harmful chemicals. Kidney and liver effects were not observed following long-term occupational exposure at concentrations up to 40 ppm. **Hearing:** Limited information suggests that long-term exposure may harm hearing. Concentrations which have produced hearing effects are probably high enough to have also produced significant symptoms of CNS depression. (1)

CARCINOGENICITY

Asphalt:

No information available on humans and animals. The International Agency for Research on Cancer (IARC) did not evaluate the carcinogenicity of this chemical. The American Conference of Governmental Industrial Hygienists (ACGIH) no listed this product. The US National Toxicology Program (NTP) has not listed this chemical in its report on carcinogens. (1) Traces of polycyclic aromatic hydrocarbons (PAH) can be present in asphalt and can be released by excessive heating. Some of these PAH were identified as having the potential to induce carcinogenic effects, and on reproductive health. (2)

Trichloroethylene:

Trichloroethylene is probably a human carcinogen. Three well-designed studies of people with occupational exposure to trichloroethylene showed higher levels of liver and biliary tract cancers and non-Hodgkins lymphoma. Numerous other studies were either negative or had significant limitations, including small sample size, limited exposure data and exposure to other chemicals. IARC has concluded that there is limited evidence for the carcinogenicity of trichloroethylene in humans. IARC has also concluded that there is sufficient evidence that trichloroethylene is carcinogenic in experimental animals. IARC has concluded that this chemical is probably carcinogenic to humans (Group 2A). ACGIH has designated this chemical as a human carcinogen (A2). NTP has listed this chemical as reasonably anticipated to be a human carcinogen. (1)

TERATOGENICITY, EMBRYOTOXICITY, FETOTOXICITY

Asphalt:

No information available.

Trichloroethylene:

Very limited human information does not indicate that occupational exposure to trichloroethylene is harmful to the unborn child. One study did not show more birth defects in the children of men occupationally exposed to trichloroethylene. There is some evidence that exposure to trichloroethylene in drinking water may cause certain types of birth defects, although the available information is far from conclusive. The available animal information does not suggest that trichloroethylene causes developmental effects. Most studies have not shown harmful effects in the offspring or have shown effects, but only in the presence of significant toxicity in the mothers. (1)

REPRODUCTIVE TOXICITY

Asphalt:

No information available.

Trichloroethylene:

It is not possible to conclude that occupational exposure to trichloroethylene causes harmful effects on reproductive function in men or women, based on the limited human information available. (1)

MUTAGENICITY

Asphalt:

No information available.

Trichloroethylene:

Trichloroethylene is considered mutagenic based on animal information. It is not possible to draw conclusions from mutagenicity studies of people with occupational exposure to trichloroethylene. Mutagenicity has been observed in some studies, but not in others. The studies had design limitations, including multiple chemical exposures and possible confounding factors such as smoking. (1)

SENSITIZATION**Asphalt:**

No information available.

Trichloroethylene:

A few case reports have described severe redness and irritation of the skin following relatively short exposures (up to 5 weeks) to unspecified or high vapour concentrations (up to 165 ppm). In most cases, impaired liver function and exposure to several other potentially harmful chemicals were also reported. In one case, the person later tested positive in a patch test, suggesting this person was allergic to trichloroethylene. However, it cannot be concluded that trichloroethylene is a skin sensitizer based on this one positive patch test. (1)

TOXICOLOGICALLY SYNERGISTIC MATERIALS**Asphalt:**

No information available.

Trichloroethylene:

When ethanol (commonly found in alcoholic beverages) is consumed shortly before or after exposure to trichloroethylene, the skin of the face and arms becomes very red. This condition is called "degreaser's flush". (1)

POTENTIAL FOR ACCUMULATION**Asphalt:**

No information available.

Trichloroethylene:

Trichloroethylene does not accumulate in the body. It is rapidly absorbed into the bloodstream following inhalation and ingestion and rapidly distributed to organs, including the liver, kidneys and cardiovascular and nervous systems. A small amount is absorbed through the skin. Some trichloroethylene is eliminated unchanged and as carbon dioxide in exhaled breath. Some trichloroethylene is broken down in the body mainly to trichloroacetic acid and trichloroethanol, which are excreted primarily in the urine. Trichloroethylene is excreted from the body at a moderate rate, mostly in the urine. (1)

SECTION IV: FIRST AID MEASURES**SKIN CONTACT**

Remove contaminated clothing. Wash thoroughly with soap and water. If irritation persists, get medical attention.

EYE CONTACT

Flush thoroughly with water for at least 15 minutes. If irritation persists, get medical attention.

INHALATION

In case of gas or vapour inhalation, move victim to fresh air. If breathing is difficult, give oxygen. If breathing stops, give respiratory assistance. Obtain medical assistance.

SWALLOWING

Do not induce vomiting. Immediately contact local poison control centre. Should vomiting occur, be sure to keep the victim's head below hips to avoid aspiration of vomit into the lungs. Maintain the victim at rest and obtain immediate medical attention.

SECTION V: FIRE-FIGHTING MEASURES

FLAMMABILITY: Not flammable

EXPLOSION DATA: Sensitivity to mechanical impact: No
Sensitivity to static charge: Yes

FLASH POINT: Not applicable

AUTO-IGNITION TEMPERATURE: Not available

FLAMMABILITY LIMITS IN AIR: (% in volume):

7.8 – 52 % at 25°C (trichloroethylene)

FIRE AND EXPLOSION HAZARDS

The vapour concentrated in a confined or badly ventilated place can catch fire in contact with a spark of high energy, a flame or a heat source of high intensity.

Trichloroethylene is not flammable under most conditions of use. However, it can probably burn if strongly heated (high temperatures and a strong flame). No flash point has been measured by standard tests. However, under certain circumstances (e.g. ignition by a high-energy source such as a welding arc or hot wire ignition), trichloroethylene can form combustible vapour-air mixtures. Therefore, in hot work situations trichloroethylene should be regarded as flammable. Addition of small quantities of combustible substances or increasing oxygen content significantly increases flammability. The liquid can accumulate static charge by flow or agitation. During a fire, irritating and toxic hydrogen chloride gas, chlorine and phosgene may be generated. Trichloroethylene can accumulate in low lying areas. Closed containers can explode if exposed to the heat of a fire or excess heat for a sufficient period of time.

COMBUSTION PRODUCTS

Irritating and/or toxic gases or fumes such as hydrogen chloride, chlorine and phosgene may be generated by thermal decomposition or combustion. Toxic and/or irritating gases or fumes can emanate from empty containers when submitted to high temperatures.

FIRE FIGHTING INSTRUCTIONS

Evacuate area. Wear self-contained breathing apparatus and appropriate protective clothing in accordance with standards. Approach fire from upwind and fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Always stay away from containers because of the high risk of explosion. Stop leak before attempting to put out the fire. If leak cannot be stopped, and if there is no risk to the surrounding area, let the fire burn itself out. Move containers from fire area if this can be done without risk. Cool containers with flooding quantities of water until well after fire is out.

EXTINGUISHING MEDIA

Anti-alcohol or universal foam, dry chemical powder, CO₂, sand.

SECTION VI: ACCIDENTAL RELEASE MEASURES**RELEASE OR SPILL**

Ventilate area. Wear appropriate protective equipment during cleanup. Shut off source of leak if this can be done without risk. Contain the spill. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Sweep or shovel into containers with lids. Cover and remove to appropriate well ventilated area until disposal. Wash spill area with soap and water. Prevent entry into waterways, sewers, basements or confined areas. Dispose of material according to the local environmental regulations.

SECTION VII: HANDLING AND STORAGE**HANDLING**

Use only in a well-ventilated area. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid breathing mist, vapour or dust. Wash thoroughly after handling. Before handling, it is very important that ventilation controls are operating and protective equipment requirements are being followed. People working with this product should be properly trained regarding its hazards and its safe use. Ground transfer containers to avoid static accumulation. Tightly reseal all partially used containers. Do not cut, puncture or weld empty containers.

STORAGE

Store full and empty containers in a cool well-ventilated area out of direct sunlight and away from heat and ignition sources. Store away from incompatible materials. Store the product according to occupational health and safety regulations and fire and building codes. Keep quantities stored as small as possible. Storage area should be

clearly identified, clear of obstruction and accessible only to trained and authorised personnel. Inspect periodically for damage or leaks. Have appropriate fire extinguishers and spill clean-up equipment near storage area. Inspect all containers to make sure they are properly labelled.

SECTION VIII: EXPOSURE CONTROLS / PERSONAL PROTECTION

HANDS: Wear chemical-resistant gloves such as SilverShield, Viton, Butyl, Neoprene 4H™, Polyvinyl Alcohol.

RESPIRATORY: If the TLV is exceeded, if use is performed in a poorly ventilated confined area, use an approved respirator in accordance with standards.

EYES: Wear chemical safety goggles in accordance with standards.

OTHERS: Eye bath and safety shower.

CONTROL OF VAPOURS: Local exhaust is needed to control vapour and dust level to below recommended limits.

SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|---------------------------------|
| PHYSICAL STATE: | Black liquid with solvent odour |
| SPECIFIC GRAVITY (H₂O = 1): | 1.07 kg / L |
| VISCOSITY: | 8 500 cP |
| VAPOUR DENSITY (air = 1): | Heavier than air |
| EVAPORATION RATE (Butyl acetate = 1): | Not available |
| BOILING POINT (760 mm Hg): | Not available |
| FREEZING POINT: | Not available |
| SOLUBILITY IN WATER (20°C): | Not available |
| VOLATILE ORGANIC COMPOUND (V.O.C.) CONTENT: | 400 g/L (SCAQMD rule 1168) |

SECTION X: STABILITY AND REACTIVITY

STABILITY: This material is stable.

CONDITIONS OF REACTIVITY: Avoid excessive heat.

INCOMPATIBILITY: Can react vigorously with oxidising agents, basis and strong acids, halogenated, metals such as aluminum and magnesium powder, sodium and potassium.

HAZARDOUS DECOMPOSITION PRODUCTS: None identified.

HAZARDOUS POLYMERISATION: None

SECTION XI: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA

Asphalt: Not available

Trichloroethylene: (1)

| | |
|------------------------|--------------------------------------|
| LC50 (rat): | 7 250 ppm (4-hour exposure) |
| LD50 (oral, rat): | 5 620 mg/kg (cited as 4.92 ml/kg) |
| LD50 (dermal, rabbit): | > 29 000 mg/kg (cited as > 20 ml/kg) |

Effects of Short-Term (Acute) Exposure

INHALATION

Asphalt:
No information available.

Trichloroethylene:

Signs of CNS depression, such as incoordination and unconsciousness, have been observed in animals following inhalation or ingestion of high doses. (1)

EYE IRRITATION (RABBIT)

Asphalt:
No information available.

Trichloroethylene:

Trichloroethylene is a severe eye irritant. Application of 0.1 ml of undiluted trichloroethylene caused severe injury in rabbits. (1)

SKIN IRRITATION

Asphalt:
No information available.

Trichloroethylene:

Trichloroethylene is a severe skin irritant. In an OECD-compliant test, application of 0.5 ml of trichloroethylene (greater than 99.95% pure) produced severe irritation in rabbits. (1)

INGESTION

Asphalt:
No information available.

Trichloroethylene:

Liver injury (e.g. inflammation and tissue death) has been observed in mice that ingested 600 mg/kg/day for 4 weeks. Similar effects were not seen in male rats that ingested 1 100 mg/kg/day for 3 weeks. (1)

Effects of Long-Term (Chronic) Exposure

INHALATION

Asphalt:
No information available.

Trichloroethylene:

Rats have survived inhalation exposures of up to 2 000 ppm for up to 6 months. The only harmful effects noted were signs of CNS depression. Harmful effects were not observed in rats following exposure to 1 000 ppm for 90 days or 770 ppm for 6 weeks, nor in monkeys exposed to 400 ppm for 7 months. (1)

INGESTION

Asphalt:
No information available.

Trichloroethylene:

CNS effects have been observed in animals following ingestion of large doses. Rats given 5 600 mg/kg/day in corn oil (99% pure; 5 days/week for up to 6 weeks all died, while at 3 000 mg/kg/day signs of toxicity included weight loss, laboured breathing, hunched posture and hair loss. Increased liver weights were observed in mice that ingested up to 800 mg/kg/day for 4-6 months. The kidney is a target organ in long-term feeding studies involving the administration of high doses to rats and mice. (1)

CARCINOGENICITY

Asphalt:
No information available.

Trichloroethylene:

IARC has determined that there is sufficient evidence for the carcinogenicity of trichloroethylene in experimental animals. In two mouse feeding studies, significant increases in liver tumours were observed. In two rat feeding studies, kidney tumours were increased in male rats, and in one study, testicular tumours were increased. In mouse inhalation studies, an increased incidence of lymphomas was reported in one study, an increased incidence of liver tumours in one study, and increased incidences of lung tumours in three studies. In rat inhalation studies, an increased incidence of testicular tumours was observed in one study. Other studies were negative, or inconclusive due to limitations in study design. (1)

TERATOGENOCITY, EMBRYOTOXICITY, FETOTOXICITY

Asphalt:
No information available.

Trichloroethylene:

The available information does not suggest that trichloroethylene causes developmental effects. Most studies have either not shown harmful effect in the offspring or have shown effects only in the presence of significant toxicity in the mothers. Significant developmental effects were not observed in rats or mice exposed to trichloroethylene in a continuous breeding study. (1)

REPRODUCTIVE TOXICITY

Asphalt:
No information available.

SECTION XV: REGULATORY INFORMATION**WHMIS**

- D1B:** Poisonous and infectious material – Immediate and serious effects (trichloroethylene)
- D2A:** Poisonous and infectious material – Other effects - Very toxic (trichloroethylene: carcinogenicity)
- D2B:** Toxic substance with other effects (trichloroethylene: mutagenicity and skin irritation).
- DSL:** All constituents of this product are included on the Domestic Substances List (DSL – Canada).
- TSCA:** All constituents of this product are included on the Toxic Substances Control Act Inventory (TSCA – USA).

| HMIS (USA): | | NFPA (USA): | |
|----------------------|---|-----------------|---|
| Health | 2 | Health | 2 |
| Flammability | 1 | Flammability | 1 |
| Physical hazard | 0 | Instability | 0 |
| Protective equipment | G | Specific hazard | 0 |

SECTION XVI: OTHER INFORMATION**GLOSSARY**

- ANSI:** American National Standards Institute
- ASTM:** American Society for Testing and Materials
- CAS:** Chemical Abstract Services
- CSA:** Canadian Standardisation Association
- DOT:** Department of Transportation (United States)
- EPA:** Environmental Protection Agency (United States)
- HMIS:** Hazardous Material Information System
- LD50/LC50:** Less high lethal dose and lethal concentration published
- NFPA:** National Fire Protection Association (United States)
- NTP:** National Toxicology Program
- OECD:** Organisation for Economic Cooperation and Development
- OSHA:** Occupational Safety & Health Administration (United States)
- RCRA:** Resource Conservation and Recovery Act (United States)
- TDG:** Transportation of Dangerous Goods
- TLV-TWA:** Threshold Limit Value – Time-Weighted Average
- WHMIS:** Workplace Hazardous Materials Information System (Canada)

References:

- (1) CHEMINFO (2008) Canadian Centre of Occupational Health and Safety, Hamilton (Ontario) Canada
- (2) Material Safety Data Sheet of the supplier

Code of MSDS: CA U DRU SS FS 066
For more information: 1 800 567-1492

The Material Safety Data Sheets of SOPREMA Canada are available on Internet at the following site: www.soprema.ca

Justification of the update:

- Update of data: Specific Gravity, Viscosity, V.O.C. (Section IX)
- Modification of codification of Protective Equipment (HMIS). (Section XV)

This MSDS contains all the information required by ANSI Z-400.1-1998 standard (United States), by regulation 29 CFR Part 1910.1200 of the Hazard Communication Standard of OSHA, and is in accordance with standard DORS/88-66 OF WHMIS Canada.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Trichloroethylene:

The information located is not sufficient to conclude that trichloroethylene causes reproductive toxicity. While some reproductive effects have been observed (e.g. abnormal sperm shape, reduced sperm motility), the exposures involved have also caused generalized toxicity and trichloroethylene exposure has not been shown to reduce fertility in animals. A well-conducted continuous breeding study suggests that trichloroethylene is not a selective reproductive toxin. In mice, liver kidney and lactational toxicity were more severe than the relatively moderate reductions in sperm motility. In rats, trichloroethylene produced general toxicity (reduced body weight, increased relative liver weight and kidney weights), with minimal effect on reproductive indices. (1)

MUTAGENICITY**Asphalt:**

No information available.

Trichloroethylene:

Trichloroethylene has been extensively studied for potential mutagenicity. Interpretation of the results from these tests is complicated, because the purity of the test substance is not always specified. Commercial trichloroethylene formulations may contain stabilizers (e.g. epichlorohydrin), which are mutagenic. Studies with impure trichloroethylene are not considered in this assessment. Positive results have been obtained in the somatic cells of live animals exposed by appropriate routes of exposure to highly pure trichloroethylene. Therefore, trichloroethylene is considered mutagenic. (1)

TOXICOLOGICAL SYNERGISM**Asphalt:**

No information available.

Trichloroethylene:

Ethanol has increased the CNS depression in mice, liver toxicity in rats and cardiac hyperreactivity to catecholamine stimulation in rabbits caused by trichloroethylene. Pre-treatment with other inducers of metabolic enzymes in the liver (mixed function oxidase system) such as Phenobarbital or 3-methylcholanthrene has also increased the liver toxicity of trichloroethylene in animals. (1)

SKIN SENSITIZATION**Asphalt:**

No information available.

Trichloroethylene:

Positive results were obtained in a well-conducted test in guinea pigs. In a modified Guinea Pig Maximization Test, trichloroethylene (99.9% pure) tested positive in 33/50 (66%) female guinea pigs. (1)

SECTION XII: ECOLOGICAL INFORMATION**ENVIRONMENTAL EFFECTS**

Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial and federal regulations may require that environmental and / or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life.

SECTION XIII: DISPOSAL CONSIDERATIONS**WASTE DISPOSAL**

This product is listed as hazardous waste. Consult local, state, provincial or territory authorities to know disposal methods. Also listed as hazardous waste by the RCRA (USA); waste disposal as to follow EPA regulations. Do not dispose of waste with normal garbage or sewers systems.

SECTION XIV: TRANSPORT INFORMATION

This product is not regulated by DOT and TDG.