SOPREMA
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SAFETY DATA SHEET

ALSAN TRAFIK HP 520

Offerte en français

GHS	PROTECTIVE CLOTHING	TRANSPORT OF DANGEROUS GOODS
		 PAINT Class 3 UN 1263 P.G.: II

SECTION I: IDENTIFICATION

Use: Single-component waterproofing polyurethane resin.

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SOPREMA (8:00am to 5:00pm): 1 800 567-1492 **CANUTEC (Canada) (24h.): 613 996-6666** **CHEMTREC (USA) (24h.): 1 800 424-9300**

SECTION II: HAZARD(S) IDENTIFICATION

DANGER

Highly flammable liquid and vapour. May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if inhaled. May cause respiratory irritation or drowsiness or dizziness. Causes skin irritation. Causes serious eye irritation. May cause damage to the central nervous system (CNS) through prolonged or repeated exposure if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, sparks, open flames and hot surfaces. No smoking. Use explosion proof electrical equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not eat or drink when using this product. Avoid breathing vapours. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling. Wear protective gloves, eye protection and an organic vapour respirator. Contaminated work clothing must not be allowed out of the workplace. Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up. Dispose of container in accordance with local, regional and national regulations.

SECTION III: COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

NAME	CAS #	% WEIGHT	EXPOSURE LIMIT (ACGIH)	
			TLV-TWA	TLV-STEL
Light aromatic solvent naphtha (C8 to C10)	64742-95-6	10-30	Not established	Not established
Toluene	108-88-3	7-13	20 ppm	Not established
Carbamic acid, 1,6-hexanediylbis-, bis [2-[2-(1-methylethyl)-3-oxazolidinyl]ethyl] ester	59719-67-4	1-5	Not established	Not established
Tris(nonylphenyl)phosphite	26523-78-4	0.5-1.5	Not established	Not established
Toluene Diisocyanate (TDI)	26471-62-5	0,1-1	0.005 ppm	0.02 ppm
Para toluenesulfonyl Isocyanate	4083-64-1	0.1-1	Not established	Not established

Effects of Short-Term (Acute) Exposure

INHALATION

Inhalation of vapours of toluene, light aromatic solvent naphtha and isocyanates (TDI) can occur. The exposure to vapours of solvents such as toluene over exposure limits may cause irritation of the respiratory system and CNS depression (headaches, dizziness, nausea, tiredness, confusion and coma). TDI is a sensitizer and may cause severe allergic reaction (e.g. asthma, difficulty to breathe, angina). Repeated exposures can lead to permanent respiratory disorders.

Light aromatic solvent naphtha: Forms high vapour concentration at normal temperatures. Mists or vapours can probably cause headache, nausea, dizziness, reduced concentration, incoordination and other symptoms of CNS depression. There is no specific human or animal information, but these effects have been observed in animals and humans exposed to comparable materials. (1)

Toluene: The main effect of inhaling toluene vapour is on the CNS. Symptoms are related to exposure concentration. At approximately 50 ppm, slight drowsiness and headache have been reported. Irritation of the nose, throat and respiratory tract has occurred between 50 and 100 ppm. Concentrations of about 100 ppm have caused fatigue and dizziness; over 200 ppm have caused symptoms similar to drunkenness (giddiness), numbness, and mild nausea; over 500 ppm have caused mental confusion and incoordination. (1)

Carbamic acid, 1,6-hexanediylbis-, bis [2-[2-(1-methylethyl)-3-oxazolidinyl]ethyl] ester: Harmful, and may cause sensitization by inhalation. Based on the available properties of the isocyanate content of this product, respiratory exposure may cause acute irritation and/or sensitization of the respiratory system, resulting in asthmatic symptoms, wheezing and a tightness of the chest. Sensitized persons may subsequently show asthmatic symptoms when exposed to airborne concentrations of isocyanates well below the occupational exposure limit. Repeated exposure may lead to permanent respiratory disability. Exposure to organic vapours may result in adverse health effects, especially when used in confined / unventilated areas, such as irritation of the mucous membrane and the respiratory system and adverse effects on the renal and central nervous systems. Symptoms include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases loss of consciousness. (2)

TDI: Short-term exposure to isocyanates, such as toluene diisocyanate (TDI), can cause respiratory and mucous membrane irritation at vapour levels of 0.05 ppm and above. Symptoms include eye and nose irritation, dry or sore or burning throat, runny nose, shortness of breath, wheezing and laryngitis. Coughing with chest pain or tightness may also occur, frequently at night. These symptoms may occur during exposure or may be delayed for several hours. High exposures could cause inflammation of the lung tissue (chemical pneumonitis), chemical bronchitis with severe asthma-like wheezing, severe coughing spasms and accumulation of fluid in the lungs (pulmonary oedema), which could prove fatal.

Symptoms of pulmonary oedema may not appear until several hours after exposure and are aggravated by physical exertion. Effects such as euphoria, muscle incoordination and loss of consciousness have been reported after a single severe exposure to TDI. Headache, difficulty in concentration, poor memory and confusion may persist for up to 4 years. (1)

Para toluenesulfonyl Isocyanate: Isocyanate vapour/mists at concentration above the exposure limits can irritate (burning sensation) the mucous membranes in the respiratory tract. May cause sensitization by inhalation. (2)

SKIN CONTACT

Frequent or prolonged contacts can remove the natural fat from the skin and may cause redness, skin irritation and dermatitis. TDI is a sensitizer and may cause severe allergic reaction (e.g. eczema). MEK can be absorbed through the skin. (1)

Light aromatic solvent naphtha: Is probably not a skin irritant, based on animal information. There is no human information available. (1)

Carbamic acid, 1,6-hexanediylbis-, bis [2-[2-(1-methylethyl)-3-oxazolidinyl]ethyl] ester: May cause sensitization by skin contact. (2)

Tris(nonylphenyl)phosphite: Causes skin irritation. (2)

TDI: Liquid TDI produces a marked inflammatory reaction. Prolonged or further contact can cause severe inflammation, redness, rash, swelling, blistering and burns. Isocyanates, in general, can cause skin discolouration (staining) and hardening of the skin after repeated exposures. Skin contact is not expected to result in the absorption of harmful amounts. Skin sensitization may occur in some individuals, but it is not common. TDI vapour and aerosols may also cause skin irritation. Usually, this only happens at levels higher than those that cause respiratory effects. (1)

Para toluenesulfonyl Isocyanate: Skin irritant. (2)

EYE CONTACT

Vapours or eye contact may cause eye irritation, redness and pain.

Light aromatic solvent naphtha: Is probably not an eye irritant, based on animal information. (1)

Carbamic acid, 1,6-hexanediylbis-, bis [2-[2-(1-methylethyl)-3-oxazolidinyl]ethyl] ester: May cause irritation. (2)

Tris(nonylphenyl)phosphite: May cause eye irritation. (2)

TDI: Liquid TDI can cause watering of the eyes, severe irritation and possible clouding of the cornea. Exposure to high TDI vapour concentration can lead to formation of solid particles in the eye fluid which can cause mechanical irritation hours after exposure. (1)

Para toluenesulfonyl Isocyanate: Contact with eyes can cause severe damage. (2)

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.

Light aromatic solvent naphtha: Animal toxicity information indicates that this product is not very toxic following ingestion. Ingestion of large amounts would produce symptoms of CNS depression, as described in "Inhalation" above. Like other petroleum distillates, it may cause an aspiration hazard. If it is drawn into the lungs during ingestion or vomiting, it could cause a potentially life-threatening accumulation of fluid (pulmonary oedema). Ingestion is not a typical route of occupational exposure. (1)

Carbamic acid, 1,6-hexanediylbis-, bis [2-[2-(1-methylethyl)-3-oxazolidinyl]ethyl] ester: May cause discomfort and risk of lung damage if vomiting results. (2)

TDI: TDI is not expected to be toxic if ingested based on animal toxicity values. Swallowing TDI could cause irritation and corrosion of the tissues lining the mouth, throat and stomach. Ingestion is not a typical route of occupational exposure. (1)

Para toluenesulfonyl isocyanate: May cause severe irritation of the mouth, oesophagus and stomach. (2)

Effects of Long-Term (Chronic) Exposure

RESPIRATORY SENSITIZATION

TDI: Respiratory sensitization has developed in people working with TDI. Sensitization is usually caused by a very large exposure, or by multiple exposures. However, symptoms of sensitization have occurred in some workers exposed frequently to low levels of TDI (0.0003 to 0.03 ppm). Although varying periods of exposure (1 day to years) may elapse before sensitization occurs, it develops more often during the first few months of exposure. Sensitized individuals react to very low levels of TDI (below 0.001 ppm) that have no effect on unsensitized people. At first, the symptoms may appear to be a cold or mild hay fever. However, severe asthmatic symptoms can develop and include wheezing, chest tightness, shortness of breath, difficulty breathing and/or coughing. Fever, chills, general feelings of discomfort, headache, and fatigue can also occur. Symptoms may occur immediately upon exposure (within an hour), several hours after exposure or both, and/or at night. Typically, the asthma improves with removal from exposure (e.g. weekends or vacations) and returns, in some cases, in the form of an "acute attack", on renewed exposure. Sensitized people who continue to work with TDI may develop symptoms sooner after each exposure. The number and severity of symptoms may increase. Death has occurred in sensitized individuals accidentally exposed to relatively low concentrations of TDI. Animal studies indicate that respiratory sensitivity to TDI may result from dermal as well as inhalation exposures. Following removal from exposure, some sensitized workers may continue to show a slow decline in lung function and have persistent respiratory problems such as asthmatic symptoms, chronic bronchitis and hypersensitivity to TDI for months or years. Others recover complete lung function within months if they have no further isocyanate exposure. TDI may also cause hypersensitivity pneumonitis, another allergic lung disease, which is characterized by symptoms such as shortness of breath, fever, malaise, non-productive cough, and chills. Several studies have shown that long-term exposure to TDI at levels as low as 0.002-0.003 ppm may cause impaired lung function such as diminished respiratory capacity. Cross-sensitization between different isocyanates may occur. People sensitized to TDI have shown sensitization to methylene bisphenyl isocyanate (MDI) and hexamethylene-1,6-diisocyanate (HDI), where no previous exposure to MDI or HDI was known. Exposure to isocyanates is likely to cause aggravation to individuals with existing respiratory disease, such as chronic bronchitis, and emphysema. (1)

Para toluenesulfonyl Isocyanate: May cause sensitization by inhalation. This product is a recognized allergen that can cause chronic respiratory obstructive airway diseases. (2)

Toluene: No human or animal information is available.

SKIN CONTACT

Light aromatic solvent naphtha: Repeated or prolonged contact may cause red, dry, itchy, scaling skin (dermatitis). (1)

SKIN SENSITIZATION

TDI: Repeated skin contact with TDI has caused skin sensitization in humans, although the condition is not common. Once a person is sensitized, contact with even a small amount of TDI can cause outbreaks of dermatitis with symptoms such as redness, rash, itching and swelling. This can spread from the hands or arms to the face and body. Some people who inhaled TDI developed extensive skin rashes that lasted 1-1.5 weeks. There was no direct skin contact with the liquid. (1)

NERVOUS SYSTEM

Light aromatic solvent naphtha: Long-term, high level exposure to organic solvents has been associated with a condition called "organic solvent syndrome". Symptoms such as excessive fatigue, reduced memory, pain and numbness in the legs, arms, hands and feet and behavioural changes have been observed in some people with long-term, high-level occupational exposure to organic solvents. (1)

Toluene: Inhalation of solvents such as toluene may cause nervous system problems. Numerous studies of rotogravure printers, painters and rubberized-matting workers with chronic exposure to toluene are

inconclusive about chronic CNS damage. Some studies report changes such as memory loss, sleep disturbances, loss of ability to concentrate, or incoordination, while others report no effects. Recent studies using sensitive neurobehavioral tests have shown altered scores for exposed workers but whether or not these indicate CNS damage is not clear. (1)

TDI: No human or animal information is available.

TARGET ORGANS

Toluene: In two cases of acute occupational exposure of toluene, there were no blood disorders, liver or kidney damage. Historical reports of blood effects caused by toluene are more than likely due to benzene contamination. Liver and kidney effects, as well as heart disturbances, have been reported in cases of solvent abuse (glue-sniffing). These extreme exposures are not relevant to occupational situations. Reversible kidney failure has resulted from a severe occupational exposure in a paint factory. In epidemiological studies on workers exposed long-term to levels up to 200 ppm, there was no clear evidence of kidney damage. Occupational exposure to up to 500 ppm toluene has not been associated with liver effects. There is some evidence to suggest that long-term exposure to toluene may affect hearing. However, the limited information available does not allow a conclusion to be drawn. Although minor changes in blood parameters have been observed, it is generally accepted that toluene does not cause significant blood disorders. (1)

TDI: No human or animal information is available.

CARCINOGENICITY

No ingredient of this product is reported to cause cancer.

Light aromatic solvent naphtha: There is no human or animal information available. The International Agency for Research on Cancer (IARC) has not evaluated the carcinogenicity of this chemical. The American Conference of Governmental Industrial Hygienists (ACGIH) has no listing for this chemical. The US National Toxicology Program (NTP) has not listed this chemical in its report on carcinogens. (1)

Toluene: There have been several human population studies which have examined the possible relationship between toluene exposure and cancer. Cancers of most sites were not significantly associated with toluene exposure in any study. Stomach cancer mortality, lung cancer rates and colorectal cancers were evaluated in some studies, but not others. Considering the multiple exposures in most studies and the inconsistencies in findings, it is not possible to conclude that toluene exposure is associated with cancer in humans. IARC has concluded there is inadequate evidence for the carcinogenicity of toluene in humans. There is evidence suggesting a lack of carcinogenicity to o-toluene in experimental animals. IARC has concluded that this chemical is not classifiable as to its carcinogenicity to humans (Group 3). ACGIH has designated this chemical as not classifiable as a human carcinogen (A4). NTP has not listed this chemical in its report on carcinogens. (1)

TDI: IARC has concluded that this chemical is possibly carcinogenic to humans (Group 2B). ACGIH has designated this chemical as not classifiable as a human carcinogen (A4). ACGIH has published a Notice of Intended Change proposing that the carcinogenicity designation be changed to A3 (animal carcinogen). NTP has listed this chemical as reasonably anticipated to be a human carcinogen. (1)

TERATOGENICITY, EMBRYOTOXICITY, FETOTOXICITY

Light aromatic solvent naphtha: There is no human information available. Harmful effects have been observed in the offspring of rats and mice exposed by inhalation, but only in the presence of maternal toxicity. (1)

Toluene: Toluene is a developmental toxicity hazard, based on information obtained from animal studies. Fetotoxicity (reduced foetal weight), behavioural effects (effects on learning and memory) and hearing loss (in males) have been observed in the offspring of rats exposed by inhalation to 1 200 or 1 800 ppm toluene. These effects were observed in the absence of maternal toxicity. A detailed review of toluene and its potential to cause teratogenicity/embryotoxicity in occupational situations has been published. This review concludes that although many occupational studies have evaluated general solvent exposure in general or to some solvent classes, with toluene exposure addressed as a co-exposure or identified as a common exposure in a sub-group. Outcomes of concern included spontaneous abortion (miscarriage) and teratogenicity (congenital malformations). Six studies examined the association of toluene exposure with spontaneous abortions. Four of the six studies were performed on similar groups of Finnish workers, by the same group of researchers, which can reduce overall confidence in the conclusions. Despite this and other limitations (e.g. recall bias, multiple chemical exposures), these studies do provide evidence suggesting there may be an association between occupational toluene exposure and the occurrence of spontaneous abortions. Nevertheless, further research is required before it will be possible to conclude that there is a causal relationship between toluene exposure and an increased incidence of spontaneous abortions. One study has reported an increased incidence of malformations (renal-urinary and gastrointestinal) in children born to women with a history of exposure to aromatic solvents, particularly toluene. However, it is not possible to draw specific conclusions regarding toluene from this study, because the toluene-specific results were based on a very small number of workers who were exposed to multiple chemicals. Concerns about the potential teratogenicity of toluene in humans have also arisen due to effects (usually renal/urinary) seen in solvent abuse cases (glue-sniffing). These extreme exposures to toluene, as well as other confounding factors such as tobacco and alcohol abuse, are not relevant to occupational situations.(1)

TDI: No human or animal information is available. (1)

REPRODUCTIVE TOXICITY

Light aromatic solvent naphtha: There is no human information available. A three-generation study showed no consistent effects on reproductive parameters in rats, despite significant toxicity. (1)

Toluene: No conclusions can be drawn based on the available human information. Reproductive effects have not been observed in animal studies. A review of toluene and its potential to cause reproductive toxicity in workers has been published. Three cross-sectional studies evaluated fertility in women exposed to toluene or in the wives of exposed men. No conclusions can be drawn based on these studies, due to limitations such as selection bias, recall bias, and the fact that the workers were exposed to other potentially harmful chemicals. Another study suggests that menstrual function is not affected by exposure to toluene. Another report describes testicular atrophy and reduced spermatogenesis in one man who abused toluene for 10 years. This extreme exposure situation is not relevant to occupational exposures. (1)

TDI: No human or animal information is available.

MUTAGENICITY

Light aromatic solvent naphtha: No report of mutagenicity in humans or human cell cultures was located. Consistently negative results have been obtained in studies using live animals, cultured mammalian cells and bacteria. (1)

Toluene: Results from the available human studies are inconclusive. Both positive and negative results have been obtained in human studies, but no studies were carried out with toluene exposure only, or with adequate control of other factors. Positive results have been obtained in some studies using live animals, but the studies either used an irrelevant route of exposure (intraperitoneal) or there are insufficient details available for evaluation. (1)

TDI: It is not possible to conclude that TDI is mutagenic. There is no human information available. (1)

TOXICOLOGICALLY SYNERGISTIC MATERIALS

Toluene: Exposure to other solvents such as benzene, xylene and ethanol (alcohol) slows the rate of clearance of toluene from the body, thereby enhancing the toxicity of toluene. (1)

Light aromatic solvent naphtha, TDI: No human or animal information is available.

POTENTIAL FOR ACCUMULATION

Light aromatic solvent naphtha: Probably does not accumulate in the body. In general, alkyl benzenes are metabolized in the liver and converted to substituted benzoic acids and phenols. Phenolic compounds are subsequently metabolized and excreted in the urine. (1)

Toluene: Toluene is readily absorbed by inhalation or ingestion and tends to be deposited more in tissues that are fatty or have a rich blood supply (e.g. brain, liver, kidney, fat). There was no evidence of accumulation in rats with repeated inhalation exposure to 300 ppm. Toluene is metabolized in the liver and excreted by the kidneys in the urine. It can also be exhaled unchanged. (1)

TDI: TDI probably does not accumulate in the body. It can enter the body by inhalation or by ingestion. It is probably metabolized to toluenediamine, which is metabolized further and excreted. (1)

SECTION IV: FIRST-AID MEASURES

SKIN CONTACT
Wash with plenty of water. If skin irritation or rash occurs: Get medical advice. Take off immediately all contaminated clothing and wash it before reuse.

EYE CONTACT
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.

INHALATION
If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center.

INGESTION
Immediately call a poison center. Do NOT induce vomiting. Rinse mouth.

SECTION V: FIRE-FIGHTING MEASURES

FLAMMABILITY: Flammable liquid, Class IB (NFPA 30)

EXPLOSION DATA
Sensitivity to mechanical impact: No
Sensitivity to static charge: Can accumulate static charge by flow, agitation or pouring. Vapours from the heated liquid at concentrations in the flammable range, can probably be ignited by a static discharge.

FLASH POINT: 21°C

AUTO-IGNITION TEMPERATURE: Not available
FLAMMABILITY LIMITS IN AIR: (% in volume) Not available

FIRE AND EXPLOSION HAZARDS
This product and its vapours are easily ignited by heat, sparks or flames. Vapours may form explosive mixtures with air. Vapours are heavier than air and may travel a considerable distance to a source of ignition and flash back to a leak or open container. The product may ignite on contact with strong oxidizing agents. Do not cut, puncture or weld empty containers.

COMBUSTION PRODUCTS
Irritating and/or toxic gases or fumes may be generated by thermal decomposition or combustion (1-methoxy-2-methylene (vinyl ether), acetic acid, carbon oxides, nitrogen oxides, nitrous acids, trace of hydrocyanic acid, trace of hydrochloric acid, formaldehyde, acetaldehyde, methylglyoxal, hydrogen cyanide, phosphorous oxides). Toxic and/or irritating gases or fumes can emanate from empty containers when submitted to high temperatures.

FIRE FIGHTING INSTRUCTIONS
Irritating and/or toxic gases or fumes may be generated by thermal decomposition or combustion. Approach fire from upwind. Evacuate area 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. Wear self-contained breathing apparatus and appropriate protective clothing in accordance with standards. Stop leak before attempting to put out the fire. Move containers from fire area if this can be done without risk. If leak cannot be stopped, and if there is no risk to the surrounding area, let the fire burn itself out. Cool containers with flooding quantities of water until well after fire is out.
TDI: Water or water-based foam, if used in very large quantities, may be effective for fighting fires involving toluene diisocyanate (TDI). However, care must be taken since the reaction between water or water-based foam and not TDI can be vigorous. TDI and its decomposition products, such as hydrogen cyanide and nitrogen oxides, are extremely hazardous to health. (1)

MEANS OF EXTINCTION
Dry chemical powder, CO_2, foam. Use of water spray when fighting fire may be inefficient because of the low flash point of the product.

SECTION VI: ACCIDENTAL RELEASE MEASURES

RELEASE OR SPILL
Ventilate area. Wear appropriate protective equipment during cleanup. Eliminate all sources of ignition. Shut off source of leak if you can do it without risk. Contain the spill. Absorb with absorbents or cover with dry earth, sand or other non-combustible material and transfer to containers. Sweep or shovel into containers with lids, use clean non-sparking tools to collect absorbed material. Cover and remove to appropriate well-ventilated area until disposal. Wash spill area with soap and water. Prevent entry into waterways, sewers, and basements. Dispose of this product according to environmental regulations.

SECTION VII: HANDLING AND STORAGE

HANDLING
This product is flammable and toxic. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid breathing 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. Eliminate all ignition sources (e.g. sparks, open flames, hot surfaces). Keep away from heat. Tightly reseal all partially used containers. Do not cut, puncture or weld empty containers.

STORAGE
Store in a cool well-ventilated area out of direct sunlight and away from moisture, heat and ignition sources. Keep storage areas clear of combustible materials. No smoking near storage area. Store away from incompatible materials. Store the product according to occupational health and safety regulations and fire and building codes. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized 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 gloves made from butyl rubber, polyvinyl alcohol or Teflon.
RESPIRATORY: If the exposure limit 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:	Liquid
ODOUR AND APPEARANCE:	Grey viscous liquid with solvent odour
ODOUR THRESHOLD:	Not available
VAPOUR DENSITY (air = 1):	Heavier than air
EVAPORATION RATE (ether = 1):	Not available
BOILING POINT (760 mm Hg):	Not available
FREEZING POINT:	Not available
SPECIFIC GRAVITY (H_2O = 1):	1.14
SOLUBILITY IN WATER (20°C):	Insoluble
VOLATILE ORGANIC COMPOUND (V.O.C.) CONTENT:	320 g/L
VISCOSITY:	5 000 cP

SECTION X: STABILITY AND REACTIVITY

STABILITY
This material is stable at handling and storage conditions recommended under the section VII.

CONDITIONS OF REACTIVITY
Avoid excessive heat. Exposed to high temperatures, this product can emit dangerous decomposition products such as fumes, carbon oxide, nitrogen oxide, hydrocyanic acid, amines and alcohols.

INCOMPATIBILITY
Keep away from oxidizing agent and from highly acid or basic materials to avoid exothermic reactions.
Strong oxidizing agents – Reacts violently with fire or explosion risk.
Water – Reacts non-violently at room temperature with release of heat to form carbon dioxide and inert material made up of polyureas which could rupture closed containers. Toluenediamine is formed as an intermediate product in the reaction. Above 50°C, the reaction becomes progressively more vigorous.
Amines, alcohols, acids, or bases – May react violently with generation of heat. METAL COMPOUNDS (e.g. organometallic catalysts, such as organotin compounds) – May polymerize with the generation of heat and pressure.
Alkaline metals – The reaction is exothermal and flammable compounds can emanate.
Halogens – The reaction is exothermal and flammable compounds can emanate.
Amides, phenols, mercaptans, urethanes, ureas and surface active agents (surfactants, e.g. non-ionic detergents) – May react vigorously or violently with the generation of heat. (1)

HAZARDOUS DECOMPOSITION PRODUCTS
This product slowly reacts with water and may cause an emanation of carbonic gas which would lead to pressure increasing in closed containers. Peroxides can also form and generate the same situation. TDI will produce toluenediamine in reaction with water.

HAZARDOUS POLYMERISATION
TDI can be subjected to an uncontrolled exothermal polymerisation by contact with water at high temperatures.

STABILITY AND REACTIVITY COMMENTS
Isocyanates are very reactive compounds and are highly reactive toward a large number of compounds with active hydrogens, particularly at high temperatures and in the presence of catalysts. (1)

SECTION XI: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA
Light aromatic solvent naphtha: (1)
LD_{50} (oral, rat): 2 900-3 200 mg/kg (unconfirmed)

Toluene: (1)
LC_{50} (inhalation, rat): 7 350 ppm (4-hour exposure)
LD_{50} (oral, rat): 2 600-7 500 mg/kg
LD_{50} (dermal, rabbit): 12 225 mg/kg

Tris(nonylphenyl)phosphite: (2)
LD_{50} (inhalation, rat): > 2 000 mg/kg

TDI: (1)
LC_{50} (rat): 14 ppm (4-hour exposure) (composition unspecified)
LD_{50} (oral, rat): > 4 000 mg/kg (80% 2,4-TDI: 20% 2,6-TDI)
LD_{50} (dermal, rabbit): 10 000 mg/kg (composition unspecified)

Carbamic acid, 1,6-hexanediylbis-, bis [2-[2-(1-methylethyl)-3-oxazolidinyl]ethyl] ester, Para toluenesulfonyl Isocyanate: No information available.

EYE IRRITATION
Light aromatic solvent naphtha: Slight redness was observed in rabbits following application of an unspecified amount of a commercial product which is comparable to light aromatic solvent naphtha. (1)

TDI: Application of 80% toluene-2,4-diisocyanate (2,4-TDI):20% 2,6-TDI (possibly undiluted) caused moderate pain, redness, swelling and discharge in rabbits. Washed eyes healed completely in 14 days. Corneal injury and redness were seen in the unwashed eyes at 21 days. (1)

SKIN IRRITATION
Light aromatic solvent naphtha: Essentially no irritation was observed in rabbits following the application of an unspecified amount of a commercial product that is comparable to light aromatic solvent naphtha. (1)

TDI: Application of 0.5 ml in a covered test for 4 hours caused corrosion in 6/6 rabbits tested. Prolonged contact with the skin can cause redness, swelling, blistering and burns. (1)

Effects of Short-Term (Acute) Exposure

INHALATION
Light aromatic solvent naphtha: Female rats were exposed to 8.7 mg/L (8 700 mg/m³) of a high aromatic solvent aerosol for 8 hours. This material is similar to light aromatic solvent naphtha, but has a higher C10 component. This high aromatic solvent is expected to be less volatile, but to have similar toxicity. Observed effects included eye and nose irritation and salivation within 20 minutes, progressive tremors, incoordination, unconsciousness, convulsions and death in 2/10 animals within 24 hours following exposure. In survivors, recovery was noted after 4 days. Four male cats exposed to 8.2 mg/L (8 200 mg/m³) high aromatic solvent aerosol for 6 hours showed muscle incoordination, tremors, salivation and a decrease in constriction of the pupils when exposed to light. No deaths were reported. Recovery occurred within one day. (1)

Toluene: The major effect of toluene is on the CNS. Studies with rats have shown that a concentration up to approximately 1 000 ppm causes excitation and increased activity. At approximately 2 000 ppm, there is CNS depression with drowsiness, incoordination and unconsciousness. Death at higher concentrations is from respiratory failure. Animal studies have indicated that toluene is not directly toxic to the cardiovascular system. Recovery is rapid following cessation of exposure. Studies indicate no permanent damage to body systems. Studies in rats have shown hearing loss at high frequencies following toluene exposure both by inhalation (concentration threshold between 700 and 1 000 ppm) and orally (620 mg/kg/day for 4 weeks). This effect has also been observed in a mouse strain that had a genetic predisposition to hearing loss. (1)

TDI: Inhalation of sublethal concentrations by mice, rats, rabbits and Guinea pigs caused severe respiratory effects such as bronchitis, bronchopneumonia, emphysema, and bleeding of the lungs. TDI is a sensory irritant. Sensory irritants inhibit respiration. (1)

INGESTION
Light aromatic solvent naphtha: Rats exposed to lethal oral doses showed CNS effects, such as decreased activity, abnormal gait, body tremors and laboured breathing, as well as diarrhoea. Rats were administered 3 000 or 5 000 mg/kg of a commercial product which is comparable to light aromatic solvent naphtha. Observations included salivation, tearing of the eyes, decreased activity, prostration, laboured breathing and diarrhoea. (1)

TDI: TDI has been reported to have gastrointestinal and liver effects when administered orally to animals. (1)

EYE IRRITATION
Toluene: Toluene is a mild eye irritant. In an OECD-compliant test, application of 0.1 ml undiluted toluene produced no to mild irritation in rabbits. Application of 0.1 ml of undiluted toluene in another OECD-compliant test protocol produced slight irritation in rabbits. Application of 0.005 ml of an excess of a 40% solution of toluene caused severe eye injury in rabbits. These results are not consistent with the reports that used undiluted toluene in OECD-compliant tests. The results of this study are therefore questionable. (1)

Tris(nonylphenyl)phosphite: Not irritating for eyes of rabbits. (2)

SKIN IRRITATION
Toluene: Toluene is a moderate skin irritant. In an OECD-compliant test, administration of 0.5 ml of undiluted toluene to intact skin, under a semi-occlusive cover, for 4 hours produced moderate irritation in rabbits.

Another OECD-compliant test showed slight irritation in rabbits following the application of 0.5 ml of undiluted toluene for 4 hours. There is insufficient information provided to properly evaluate these test results. Other test protocols have shown moderate irritation in intact and abraded skin, with prolonged exposure (23 hours), and in a study that does not strictly meet OECD guidelines. Application of 0.5 of undiluted toluene for 4 hours, to intact and abraded skin, produced moderate irritation in rabbits. Application of 0.5 ml of undiluted toluene for 23 hours, to intact and abraded skin, produced moderate irritation in rabbits. Application of 0.01 ml of undiluted toluene produced moderate irritation in rabbits. (1)

Tris(nonylphenyl)phosphite: Skin irritant for rabbit. (2)

Para toluenesulfonyl Isocyanate: Isocyanates are known to cause skin sensitization in humans. (2)

SENSITIZATION
Tris(nonylphenyl)phosphite: Sensitizing for Guinea pig. (2)

Effects of Long-Term (Chronic) Exposure

INHALATION:
Light aromatic solvent naphtha: Reduced body weight was observed in male rats following a 13-week exposure to very high concentrations. Increased liver and kidney weights were observed in male rats exposed to high concentrations for up to 12 months. Females had reduced blood cell (eosinophil) counts that persisted throughout a 4-month recovery period. No signs of neurotoxicity or harmful changes were observed. (1)

Toluene: Daily inhalation by rats of toluene concentrations below 400 ppm for up to 24 months resulted in no significant toxicity. Evidence for chronic CNS neurotoxicity is inconclusive. Numerous studies on rats and mice have shown reduced performance on some neurobehavioral tests but not others, both during and after toluene inhalation exposures (usually at greater than 500 ppm). Where tests were repeated after an exposure-free period, most results were the same as controls. The significance of minor changes in brain cells or in behavioural tests is not known. (1)

TDI: Rats, Guinea pigs and rabbits exposed to 0.1 ppm, 6 hours/day, 5 days/week for up to 58 exposures or 6 hours/day for 38 consecutive days, developed lung inflammation. Lung damage generally increased in severity for several days after exposure ended. (1)

Para toluenesulfonyl Isocyanate: This product may cause chronic respiratory and obstructive airway diseases. Allergic reactions may develop after inhalation of low concentrations, also several hours after exposure. (2)

RESPIRATORY SENSITIZATION
TDI: Concentration dependent respiratory sensitization has been produced in Guinea pigs. Threshold levels of 0.25 to 0.36 ppm TDI (80% 2,4-TDI:20% 2,6-TDI) have been observed. (1)

Para toluenesulfonyl Isocyanate: Isocyanates are known to cause respiratory sensitization in humans. (2)

INGESTION
Toluene: No significant toxicity was seen after oral administration of up to 590 mg/kg to female rats for up to six months. (1)

TDI: No information available.

SKIN SENSITIZATION
TDI: Skin and respiratory sensitization were produced in animals by direct application of 2,4-TDI to the skin. No dermal or respiratory sensitization was detected in animals exposed to 0.02 ppm for 15 weeks. (1)

Para toluenesulfonyl isocyanate: This product may cause skin disorders and allergies. (2)

CARCINOGENICITY
Toluene: IARC has concluded there is inadequate evidence for the carcinogeneicity of toluene in experimental animals. Toluene was not carcinogenic in mice and rats exposed by inhalation to up to 1 200 ppm for 24 months.(1)

TDI: IARC has determined there is sufficient evident for the carcinogenicity of toluene diisocyanate to experimental animals. (1)

TERATOGENICITY, EMBRYOTOXICITY, FETOTOXICITY
Light aromatic solvent naphtha: Harmful effects have been observed in the offspring of rats and mice exposed by inhalation, but only in the presence of maternal toxicity. Mice were exposed by inhalation to 0, 100, 500 or 1 500 ppm on days 6-15 of pregnancy. Exposure to 100 ppm produced a significant decrease in the number of live foetuses/litter. However, this effect was not dose-related, as it did not occur at the 500 ppm exposure. No significant maternal toxicity was noted at 100 ppm. At 500 ppm, a significant reduction in foetal body weight was observed in the presence of maternal toxicity (reduced weight gain). At 1 500 ppm, teratogenicity, embryotoxicity, and fetotoxicity were observed in the presence of severe maternal toxicity (44% mortality and clinical observations). Rats were continuously exposed to approximately 120, 200 or 400 ppm (cited as 600, 1 000 or 2 000 mg/m³) Aromatol on days 7-15 of pregnancy. A significant increase in foetal skeletal retardation was observed at all exposures. Foetal weight was retarded at 200 or 400 ppm and overall malformations were increased at 400 ppm. Toxic effects in the mothers were described as slight and dose-dependant. The authors of this paper and authors of a subsequent review indicate that no significant effects were observed in rat offspring at the low dose. Rats were exposed to 0, 120, 200 or 400 ppm (cited as 600, 1 000 or 2 000 mg/m³) Aromatol during days 7-15 of pregnancy with subsequent behavioural evaluation of the pups. No effects were observed in the behavioural parameters evaluated, birth weight, postnatal weight pain or survival or nervous system development. Mice exposed continuously to approximately 100 ppm (500 mg/m³) on days 6-15 of pregnancy showed embryotoxicity (post-implantation loss) and an increase in overall malformations. There was no evaluation of maternal toxicity. (1)

Toluene: Toluene does cause developmental effects in animals, based on fetotoxicity (reduced foetal weight), behavioural effects (effects on learning and memory) and hearing loss (in males) were observed in the offspring of rats exposed by inhalation to 1 200 or 1 800 ppm toluene. These effects were observed in the absence of maternal toxicity. Rats (16/group) were exposed to 1 800 ppm toluene or clean air on days 7-20 of pregnancy. The dose was targeted so as not to induce marked toxicity in the mothers and no toxicity was seen. Fetotoxicity, as evidenced by reduced birth weight, was observed in the offspring. (1)

TDI: No information available.

REPRODUCTIVE TOXICITY
Light aromatic solvent naphtha: A three-generation study showed no consistent effects on reproductive parameters in rats despite significant toxicity. Rats were exposed to 0, 100, 500 or 1 500 ppm in a three-generation study. The first generation (F0) was exposed for 10 weeks with exposure continuing during a 2-week mating period. Females were then exposed on days 0-20 of pregnancy and allowed to deliver their litters with exposure beginning again on post-natal day 5 until weaning. One week after weaning, rats in the second generation (F1) were exposed for 10 weeks and then were mated. Immediately after weaning the third generation (F2) began exposure. The majority of F2 pups in the high dose group died during the first week of exposure. Most fertility indices were not affected for any generation despite significant parental toxicity at 500 ppm and above. Those indices that were affected (e.g. reduced male fertility and reduced litter size in F1 at 1 500 ppm) occurred at toxic doses, did not show a dose-response relationship and did not appear in other generations. (1)

Toluene: No adverse effects on reproduction were observed in several studies on both rats and mice, even at maternally toxic exposures. Two generations of mice exposed intermittently by inhalation to 2 000 ppm (6 hours/day, 7 days/week) had no reproductive effects. (1)

TDI: No information available.

MUTAGENICITY
Light aromatic solvent naphtha: Negative results were observed in the bone marrow cytogenicity test following inhalation exposure of rats to 150, 500 or 1500 ppm for 5 days, despite evidence of toxicity (reduced body weight gain) in the animals. Negative results were obtained in cultured mammalian cells (the CHO/HGPRT forward mutation assay,

and sister chromatid exchanges and chromosomal aberration in CHO cells), with or without metabolic activation. Negative results were obtained in a gene mutation assay, both with and without metabolic activation, at exposure levels that were toxic to some of the bacteria strains tested. (1)

Toluene: There is insufficient information available to conclude that toluene is mutagenic. There is some evidence that toluene can cause chromosome damage in vivo when administered to mice by injection, although conflicting results have been obtained and this route of exposure is not considered relevant to occupational situations. Negative results were obtained following oral administration. There is one report of positive results (chromosomal aberrations) in the bone marrow cells of rats exposed by inhalation. Insufficient details are available in English to evaluate this report. Positive and negative results have been obtained in tests using cultured mammalian cells. Negative results have been obtained in tests using bacteria. Positive and negative results have been obtained in fruit flies. (1)

Tris(nonylphenyl)phosphite: This material was not mutagenic in an Ames bacterial assay. (2)

TDI: Production-grade TDI (80:20 mixture) gave negative results in the in vivo mouse and rat white blood cell micronucleus test (exposure to 0.05 or 0.15 ppm TDI for 4 weeks. Negative results were obtained for the 80:20 mixture in cultured mammalian cells. There are conflicting reports in bacterial tests. (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 regulations 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

CLASSIFICATION (TDG - DOT): Class 3
IDENTIFICATION NUMBER: UN 1263
SHIPPING NAME: Paint
PACKING GROUP: II
CONTAINERS FOLLOW THE STANDARDS.

Classification based on Section V of this document

SECTION XV: REGULATORY INFORMATION

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 – United States).

Prop. 65: This product contains chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION XVI: OTHER INFORMATION

GLOSSARY

ASTM: American Society for Testing and Materials (United States)
CAS: Chemical Abstract Services
CSA: Canadian Standardization Association
DOT: Department of Transportation (United States)
EPA: Environmental Protection Agency (United States)
GHS Globally Harmonized System
LD_{50}/LC_{50}: Less high lethal dose and lethal concentration published
NIOSH: National Institute for Occupational Safety and Health (United States)
OECD: Organisation for Economic Co-operation and Development
RCRA: Resource Conservation and Recovery Act (United States)
TDG: Transportation of Dangerous Goods (Canada)
TLV-TWA: Threshold Limit Value – Time-Weighted Average

References:

(1) CHEMINFO (2015) Canadian Centre of Occupational Health and Safety, Hamilton (Ontario) Canada
(2) Safety Data Sheet of the supplier.

Code of SDS: **CA U DRU SS FS 122**

For more information: 1 800 567-1492

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

Justification of the update:

- GHS format.

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.