SOPREMA
We've got you covered

SAFETY DATA SHEET

ALSAN TRAFIK HP 540

Offerte en français

GHS	PROTECTIVE CLOTHING	TRANSPORT INFORMATION
		**Not regulated**

SECTION I: IDENTIFICATION

Use: Waterproofing polyurethane transparent resin single-component used for finishing.

Distributor:
Soprema Australia Pty Ltd
Level 36, 1 Macquarie Place
Sydney, NSW 2000
AUSTRALIA
Tel.: +61 2 8051 3153

In case of emergency:

Poison Information Centre: 13 11 26

SECTION II: HAZARD(S) IDENTIFICATION

PRODUCT CONSIDERED A HAZARDOUS CHEMICAL, according to the Model WHS Regulations. PRODUCT NOT CONSIDERED A DANGEROUS GOOD, according to the ADG Code.

DANGER. 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 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
Propyleneglycol methylethyl acetate (PGMEA)	108-65-6	10-30	50 ppm	Not established
Light aromatic solvent naphtha (C8 to C10)	64742-95-6	10-30	Not established	Not established
Carbamic acid, 1,6-hexanediylbis-, bis [2-[2-(1-Methylethyl)-3-oxazolidinyl] ethyl] ester	59719-67-4	7-13	Not established	Not established
Isophorone diisocyanate (IPDI)	4098-71-9	1-5	0.005 ppm	Not established
Xylene	1330-20-7	0.1-1	100 ppm	150 ppm

Effects of Short-Term (Acute) Exposure

INHALATION

PGMEA: PGMEA is not expected to cause any effects based on the low concentration level of this chemical in the product. Based on the effect of the chemically-similar propylene glycol monomethyl ether (PGME), irritation of the nose and throat from inhalation of propylene glycol monomethyl ether acetate (PGMEA) vapour or mist would be expected. (1)

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 central nervous system depression. There is no specific human or animal information, but these effects have been observed in animals and humans exposed to comparable materials. (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 mucus 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)

IPDI: Reports of occupational exposures to isophorone diisocyanate (IPDI) are restricted to spray painting operations. IPDI has a very low vapour pressure and airborne exposures are unlikely to occur unless IPDI is heated or forms an aerosol or mist during spraying operations. IPDI aerosol or mist can cause respiratory tract and mucous membrane irritation. Typical symptoms include eye and nose irritation, dry or sore throat, runny nose, shortness of breath, difficulty in breathing, 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 several hours. Short (1 to 5 minutes) exposures of volunteers to IPDI aerosol levels of 0.64 mg/m³ caused slight throat irritation. Aerosol levels of 1.37 mg/m³ caused unbearably strong nose and throat irritation. At 0.25 mg/m³, the odour was hardly perceptible. High aerosol concentrations could cause inflammation of

the lungs (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. Some people may become sensitized to IPDI. (1)

Xylene: The main effect of inhaling xylene vapour is depression of the central nervous system (CNS, with symptoms such as headache, dizziness, nausea and vomiting. Volunteers have tolerated 100 ppm, but higher concentrations become objectionable. Irritation of the nose and throat can occur at approximately 200 ppm after 3 to 5 minutes. Exposures estimated at 700 ppm have caused nausea and vomiting. Extremely high concentrations (approximately 10,000 ppm) could cause incoordination, loss of consciousness, respiratory failure and death. In some cases, a potentially fatal accumulation of fluid in the lungs (pulmonary oedema) may result. Symptoms of pulmonary oedema, such as shortness of breath and difficult breathing, may be delayed several hours after exposure. However, these effects are rarely seen since xylene is irritating and identifiable by odour at much lower concentrations. The only reported death resulted from exposure to xylenes (unspecified isomer composition and unknown concentration) in a confined space. Reversible liver and kidney damage has been reported in cases of severe xylene exposure. Results of short-term studies on human volunteers indicate that xylenes can cause neurobehavioral effects such as impaired short-term memory and reaction time (300 ppm mixed xylenes, with exercise) and alterations in body balance (65 to 400 ppm m-xylene). Exposure to 300 or 400 ppm mixed xylenes or 65 to 150 ppm p-xylene has not had similar effects. This variation in results is probably due to differences in the effects being studied, exposure conditions, development of tolerance and total xylene uptake (which increases during exercise). (1)

SKIN CONTACT

IPDI: Liquid IPDI can cause severe skin irritation. Prolonged contact can cause severe inflammation with redness, rash, swelling and blistering. Isocyanates, in general, can cause skin discolouration (staining) and hardening of the skin after repeated exposures. IPDI caused severe skin irritation when applied to rabbit skin. IPDI is a very strong skin sensitizer. Skin sensitization may occur after only one contact with IPDI. (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)

Xylene: Studies with xylene isomers have shown irritation, redness and a burning sensation can result from contact. These effects are reversible shortly (usually within 1 hour) after the contact stops. Xylene liquid or vapour can be absorbed through the skin, but not as readily as when inhaled or ingested. Significant harmful effects are not expected by this route of exposure. (1)

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)

IPDI: IPDI liquid, aerosol or mist can cause eye irritation. People exposed to IPDI aerosol levels of 0.64 mg/m³ experienced slight eye irritation, while aerosol levels of 1.37 mg/m³ caused strong eye irritation. Liquid IPDI caused severe eye damage when applied to rabbit eyes. (1)

Xylene: The liquid is probably a mild irritant, based on animal information. Eye irritant has been reported at vapour levels as low as 200 ppm. Corneal vacuoles (pockets of fluid or air in the cornea) have also been reported following exposure to undefined vapour concentrations. This effect was reversible within 8 to 11 days for 7 of 8 workers. (1)

INGESTION

It is unlikely that this product would be ingested with normal 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 central nervous system 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)

IPDI: There have been no reports of people ingesting IPDI and ingestion is unlikely to occur in the workplace. Animal studies indicate that IPDI has low oral toxicity. Ingestion could cause irritation of the tissues of the mouth, throat and digestive tract. (1)

Xylene: Based on animal information, xylene is only slightly toxic by ingestion. Ingestion of large amounts is likely to cause CNS effects such as dizziness, nausea and vomiting. In one case, ingestion of food probably contaminated with xylene caused pulmonary oedema, liver impairment and coma. The man recovered within 2 hours after treatment. Ingestion is not a common route of occupational exposure. Although there are no case reports, xylene may be aspirated, based on its physical properties (viscosity and surface tension). Aspiration is the inhalation of a material into the lungs during ingestion or vomiting. Severe lung irritation, damage to the lung tissues and death may result. (1)

Effects of Long-Term (Chronic) Exposure

SKIN CONTACT

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

RESPIRATORY EFFECTS

IPDI: In general, isocyanates are well known to cause respiratory sensitization. There are two case reports of respiratory sensitization caused by exposure to IPDI in spray paint. It has been suggested that IPDI is a weak respiratory sensitizer. Isocyanate respiratory sensitization is usually caused by a very large exposure, or by multiple exposures. 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 airborne isocyanates 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., tightness of the chest, 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 be exposed to isocyanates at work may develop symptoms sooner after each exposure. The number and severity of symptoms may increase. Following removal from isocyanate exposure, some sensitized people may continue to show a slow decline in lung function and have persistent respiratory problems, such as chronic bronchitis for months or years. Others may recover fully and gradually lose their sensitivity within several years. Cross-sensitization between different isocyanates may occur. Exposure to isocyanates is likely to aggravate individuals with existing respiratory disease, such as chronic bronchitis and emphysema. (1)

PGMEA: No human or animal information is available.

SKIN SENSITIZATION

IPDI: IPDI is a very strong sensitizing agent. Sensitization may occur after a single exposure or develop gradually over time. Symptoms include a rash on the hands, arms, neck, face, chest or abdomen even upon contact with a small amount of IPDI. Other effects such as coughing, a burning sensation in the throat, or redness and swelling of the eyes. In a case study, a single 1-hour exposure to IPDI caused a rash in 3 of 4 workers. Only one worker had previous contact with IPDI, the rest had worked. Only one worker had previous contact with IPDI, the rest had worked with TDI and MDI (suggesting cross-sensitization). Cross-sensitivity has been shown to occur between IPDI and isophorone diamine (IPD).

Xylene: Repeated contact can produce dermatitis (dryness and cracking) due to degreasing action. Skin sensitization was not produced in any of 24 volunteers. There is one case report of a person developing an allergic skin reaction (contact urticaria) following exposure to xylene (unspecified composition) vapour. The person subsequently tested positive in a patch test. No information was provided regarding previous history of allergies. No conclusions can be drawn regarding the potential for xylene to produce allergic skin reactions, based on this single case report. (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)

Xylene: Long-term xylene exposure may cause harmful effects on the central nervous system, but there is not enough information available to draw firm conclusions. Symptoms such as headaches, irritability, depression, insomnia, agitation, extreme tiredness, tremors, and impaired concentration and short-term memory have been reported following long-term occupational exposure to xylene and other solvents. This condition is sometimes generally referred to as "organic solvent syndrome". Unfortunately, there is very little information available which isolates xylenes from other solvent exposures in the examination of these effects. Other study deficiencies include inadequate reporting on the duration of exposure and the exposure levels, and poor matching of controls. In a recent study, 175 employees were exposed to an average xylene concentration of 21 ppm for an average of 7 years. Subjective symptoms such as anxiety, forgetfulness, inability to concentrate and dizziness were reported. Xylenes accounted for greater than 70% of the total exposure. This study is also limited by factors such as those described above. (1)

PGMEA: No human or animal information is available.

TARGET ORGANS

Xylene: BLOOD EFFECTS: Historical reports sometimes associate xylene exposure with certain blood effects, including leukemia, which are now known to be caused by benzene. Uncontaminated xylene is not known to cause these effects. Reduced blood platelet counts were observed in 12 of 27 men exposed to mixed xylene (unspecified composition) at a level up to 200 ppm. When exposure stopped, platelet counts returned to normal. There is insufficient information to draw any conclusions from this study. LIVER AND KIDNEY EFFECTS: A number of case reports and occupational studies have suggested that liver and kidney damage may result from long-term occupational exposure to xylene. However, it is not possible to attribute these effects directly to xylene exposure because generally there was exposure to other chemicals at the same time, particularly other solvents, and there was no information provided on the exposure levels or duration of exposure. In a recent study, 175 employees were exposed to a mean xylene concentration of 21 ppm for an average of 7 years. Liver and kidney effects were not reported. Xylenes accounted for greater than 70% of the total exposure. (1)

PGMEA: No human or animal information is available.

CARCINOGENICITY

PGMEA: No human or animal information is 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 any of these chemicals. The US National Toxicology Program (NTP) has not listed this chemical in its report on carcinogens. (1)

Light aromatic solvent naphtha: There is no human or animal information available. The IARC has not evaluated the carcinogenicity of this chemical. The ACGIH has no listing for this chemical. The US NTP has not listed this chemical in its report on carcinogens. (1)

IPDI: No human or animal information is available on the carcinogenicity of IPDI. The IARC has not evaluated the carcinogenicity of this chemical. The ACGIH has not assigned a carcinogenicity designation to this chemical. The US NTP) has not listed this chemical in its report on carcinogens. (1)

Xylene: Xylene has been mentioned as an exposure in 4 case-control studies. Cancers at most sites were not significantly associated with xylene exposure in any study. Most results were based on small numbers, most studies involved exposure to other potentially harmful substances, and the consistency of findings is weak. Therefore, the IARC has determined that there is inadequate evidence for the carcinogenicity of xylene in humans. No conclusions can be drawn from the available animal information. The IARC has concluded that this chemical is not classifiable as to its carcinogenicity to humans (Group 3). The ACGIH has designated this chemical as not classifiable as a human carcinogen (A4). The US NTP has not listed this chemical in its report on carcinogens. (1)

TERATOGENICITY, EMBRYOTOXICITY, FETOTOXICITY

PGMEA: Animal studies have shown that the chemically-similar PGME has no teratogenic or embryotoxic effects. Thus, none are expected for PGMEA. (1)

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)

Xylene: Several human population studies have suggested a link between exposure to organic solvents (including xylene) and increased occurrence of miscarriages or birth defects in children. However, in the majority of cases, there was exposure to a variety of solvents at the same time, exposures were ill-defined, and the number of cases examined was small. Overall, no conclusions can be made on the effects of exposure to xylenes on the unborn child because of the inadequacy of the available information. Xylene (mixed isomers) has produced fetotoxic effects (delayed ossification and behavioural effects) in animals, in the absence of maternal toxicity. Animal information suggests that xylenes are not teratogenic or embryotoxic at exposure levels that are not harmful to the mother. (1)

IPDI: 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)

Xylene: An increase in menstrual disorders has been reported in women exposed to organic solvents such as benzene, toluene and xylenes. It is not possible to attribute these effects to xylenes in particular. The limited animal information available suggests that xylenes do not cause reproductive effects. (1)

IPDI, PGMEA: No human or animal information is available. (1)

MUTAGENICITY

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

Xylene: There have been a few studies investigating the mutagenic potential of mixed xylenes (undefined composition) in workers exposed occupationally. In one study, xylene contained ethylbenzene, and in the other there was co-exposure to other solvents including benzene. These studies (induction of sister chromatid exchanges and chromosomal aberrations in human lymphocytes [white blood cells]) were negative. Negative results were also obtained in a study where volunteers were exposed to 40 ppm mixed xylenes over two weeks. However, no conclusions can be drawn because of limitations such as small study populations and exposure to other chemicals at the same time. There were no increases in chromosome aberrations and sister chromatid exchanges without metabolic activation, in cultured human lymphocytes. (1)

IPDI: No studies are available. (1)

PGMEA: No human or animal information is available.

TOXICOLOGICALLY SYNERGISTIC MATERIALS

Xylene: Exposure to related solvents, such as benzene, toluene and ethanol (alcohol) slows the rate of clearance of xylenes from the body, thus enhancing its toxic effects. Exposure to xylene in combination with other solvents has had an additive effect with respect to harming the hearing of rats. (1)

IPDI: No information is available. (1)

PGMEA: No human or animal information is available.

POTENTIAL FOR ACCUMULATION

PGMEA: Does not accumulate. PGMEA is rapidly metabolized to PGME and acetic acid. Animal studies indicate that PGME is rapidly metabolized and eliminated from the body. PGMEA was rapidly and extensively metabolized to propylene glycol monomethyl ether and acetic acid (which is a normal body substance), and eliminated in the same manner as propylene glycol monomethyl ether (in the expired air as carbon dioxide, in the urine and very small amounts in the feces). At very high doses of PGMEA, the acetic acid formed in the hydrolysis, may have adverse effects. (1)

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)

IPDI: Information about the absorption, metabolism and excretion of IPDI is limited. Like other isocyanates, it probably does not accumulate. (1)

Xylene: The three xylene isomers are readily absorbed by inhalation and ingestion and are widely distributed throughout the body. A small amount may be absorbed through the skin. Xylenes are largely broken down by the liver and most of the absorbed material is rapidly excreted in the urine as breakdown products. Small amounts are eliminated unchanged in the exhaled air. There is low potential for accumulation. (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: Combustible liquid, Class II (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: > 40°C

AUTO-IGNITION TEMPERATURE: Not available

FLAMMABILITY LIMITS IN AIR: (% in volume) Not available

FIRE AND EXPLOSION HAZARDS

This product and its vapours can be 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

Toxic and/or irritating gases or fumes may be generated by thermal decomposition or combustion (1-methoxy-2 methylethylene [vinyl ether], acetic acid, carbon oxides, nitrogen oxides, trace of hydrocyanic acid, trace of hydrochloric acid, trace of formaldehyde), acetaldehyde and methylglyoxal), amine derivatives [including nitrous acids]). Toxic and/or irritating gases or fumes can emanate from empty containers when submitted to high temperatures.

FIRE FIGHTING INSTRUCTIONS

Toxic and/or irritating 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. 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.

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. Do not touch or walk through spilled material. Wash spill area with soap and water. Prevent entry into waterways, sewers, basements or confined areas. Dispose of this product according to environmental regulation.

SECTION VII: HANDLING AND STORAGE

HANDLING

This product is flammable and toxic. 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 would 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 areas/building designed to comply with appropriate dangerous goods regulations and Australian Standards. Store containers in a cool well-ventilated area out of direct sunlight and away from humidity, 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 in accordance with AS 2161.10.1 and AS 2161.1.
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 AS 1716& 1715.
EYES: Wear chemical safety goggles in accordance with AS 1336.
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:	Transparent 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
SOLUBILITY IN WATER (20°C):	Insoluble
VOLATILE ORGANIC COMPOUND (V.O.C.) CONTENT:	340 g/L
VISCOSITY:	250 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, trace of hydrocyanic acid, trace of formaldehyde, trace of hydrochloric acid.

INCOMPATIBILITY
Keep away from oxidizing agent and from highly acid and 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.
Acids or bases – May react violently with generation of heat and flammable compounds.
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.

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 container. Peroxides can also form and generate the same situation. IPDI will form isophorone diamine by contact with water.

HAZARDOUS POLYMERISATION
IPDI can be subjected to an uncontrolled exothermal polymerisation in case of contact with incompatible materials, more specifically strong bases, some metallic compounds and heat.

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)

LD50 (oral, rat):	2900-3200 mg/kg (unconfirmed)

IPDI: (1)

LC50 (rat):	123-160 mg/m³ (13.6-17.6 ppm) (4-hour exposure) (aerosol)
LD50 (oral, male rat):	> 2 500 mg/kg
LD50 (dermal, male rat):	approx. 1000 mg/kg (4-hour exposure); approx. 500 mg/kg (4-day exposure)

Xylene: (1)

LC50 (rat):	6 350 ppm (4-hour exposure) (unspecified isomers and ethylbenzene)
LD50 (oral, rat):	5 400 mg/kg
LD50 (dermal, rabbit):	12 180 mg/kg; greater than 1 700 mg/kg (mixed xylenes – undefined composition)

PGMEA, Carbamic acid, 1,6-hexanediylbis-, bis [2-[2-(1-Methylethyl)-3-oxazolidinyl] ethyl] ester: 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)

EYE 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)

Effects of Short-Term (Acute) Exposure

INHALATION
Light aromatic solvent naphtha: Female rats were exposed to 8.7 mg/L (8700 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 (8200 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)

IPDI: IPDI causes respiratory irritation in rats. (1)

Xylene: The major effect of xylene inhalation is on the central nervous system (CNS). There is initial excitation followed by depression, drowsiness, incoordination and unconsciousness at approximately 2000 ppm. Death at higher concentrations is from respiratory failure due to CNS depression and/or accumulation of fluid in the lungs (pulmonary oedema). Irritation of the respiratory tract, causing a decrease in the respiratory rate, has been reported. The RD50, the concentration which produces a 50% decease in the respiratory rate of mice, is 2440 ppm. This concentration is expected to produce intolerable eye, nose and throat irritation (sensory irritation) in humans. Behavioural effects such as effects on learned behaviours and avoidance conditioning have been observed in animals following short-term inhalation. Hearing loss, mainly at mid-frequencies, has been observed in rats following short-term exposures (800 ppm and above for 6 weeks or 1450 ppm for 3 days) to xylene. A no-effect level was not determined and reversibility was not assessed. (1)

PGMEA: No information available.

EYE IRRITATION

PGMEA (rabbit): Somewhat painful and irritating to the eyes. (1)

Xylene: Application of xylene caused mild irritation and very slight, transient corneal damage in rabbits. Vapour exposure (unknown concentration) to mixed xylenes (undefined composition) resulted in fine vacuoles in the corneas of cats which disappeared in 24 hours. (1)

SKIN IRRITATION

PGMEA (rabbit): Repeated applications were not very irritating to rabbit and did not cause absorption of significant amounts, even when applied repeatedly for a 2-week period. (1)

IPDI: IPDI caused moderate skin sensitization in guinea pigs. Mice showed statistically significant allergic responses when sensitized with a concentration of 1% IPDI. It was estimated that IPDI was probably equivalent to toluene diisocyanate in sensitizing potential. (1)

Xylene: A single application of an unspecified amount of xylenes (unspecified composition) caused irritation and swelling in rabbits and guinea pigs. Application of 0.5 ml of the xylene mixture (unspecified composition) to rabbit skin for 24 hours caused moderate irritation. Repeated application, 10-20 times over a 2 to 4-week period, of mixed xylene to rabbit skin caused moderate to marked irritation, swelling and tissue death. (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 diarrhea. Rats were administered 3000 or 5000 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 diarrhea. (1)

Effects of Long-Term (Chronic) Exposure

INHALATION

PGMEA (rat, mouse): Repeated exposures at 300 and 1000 ppm for two weeks (6 hours/day, 5 days first week, 4 days second week) produced no adverse effects. There were minor changes found at very high exposures (3000 ppm) – slight increase in liver weight for females, slight effect on kidney function and slight to moderate injury to the lining of the nose. The latter effect was more severe with mice. It was suggested that this effect was related to acetic acid resulting from hydrolysis of PGMA in the nose. There were no effects on thymus and spleen weights, on bone marrow or blood. (1)

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)

INGESTION

PGMEA (rat): A single dose of 3 ml/kg produced no deaths; 10 ml/kg caused death in 3 of 5 animals tested. (1)

TARGET ORGANS

Xylene: In general, animal studies have provided little evidence of damage to the liver, kidney or lungs, nor any other significant long-term health effects following long-term inhalation. No effects were observed following exposure of rats or dogs to mixed xylenes up to 810 ppm, 6 hours/day for 13 weeks. Some studies have shown subtle, reversible blood effects at concentrations above 1000 ppm. However, xylenes have not been shown to cause benzene-like cancer of the blood. No important findings were observed following oral administration of 1000 mg/kg (rats) and 2000 mg/kg (mice) of mixed xylenes for 90 days. Similarly, only reduced body weight was observed in male rats fed 500 mg/kg of the same mixed xylene for 103 weeks. No significant effects were noted in mice fed up to 1000 mg/kg for 103 weeks. (1)

CARCINOGENICITY

Xylene: Oral studies of mixed xylenes in rats (up to 500 mg/kg for 103 weeks) and mice (up to 1000 mg/kg for 103 weeks) found no treatment-related increase in the incidence of tumours. In another carcinogenicity study, xylene (unspecified composition) was administered to rats (up to 500 mg/kg for 104 weeks). The reporting of this study was so poor that it is not possible to evaluate the results. A number of studies have investigated whether exposure to xylenes causes skin cancer. The conduct and reporting of these studies do not allow any conclusions to be drawn. The IARC has determined that there is inadequate evidence for carcinogenicity of xylene in animals. (1)

PGMEA: No information available.

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 1500 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 1500 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, 1000 or 2000 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, 1000 or 2000 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 gain 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)

Xylene: In three studies, fetotoxic effects (delayed ossification and behavioural effects) were observed in the offspring of rats exposed by inhalation to 500 ppm mixed xylenes with up to 20% ethylbenzene. In another study, fetotoxicity (decreased weight) was observed in the female offspring of rats exposed to up to 500 ppm of mixed xylenes (12.8% ethylbenzene). No signs of maternal toxicity were observed in these studies. In other studies where rats and mice were exposed by inhalation or ingestion, harmful effects in the offspring (teratogenicity, embryotoxicity and/or fetotoxicity) were either not observed or were observed in the presence of significant harmful effects in the mothers.

Some other studies have not been evaluated because of significant study design limitations for example, poor reporting of exposure details and/or effects, and inadequate evaluation of material toxicity. (1)

PGMEA: 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, 1000, 500 or 1500 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 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 1500 ppm) occurred at toxic doses, did not show a dose-response relationship and did not appear in other generations. (1)

Xylene: No harmful reproductive effects were noted in males or females when rats were exposed to up to 500 ppm mixed xylenes in a single generation study. No firm negative conclusions can be drawn from this study because the maximum tolerated dose may not have been achieved. Ingestion of mixed xylenes for up to 2 years caused no observable adverse effects in the reproductive organs of male and female rats (up to 500 mg/kg/day) or mice (up to 1000 mg/kg/day). (1)

PGMEA: 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)

Xylene: Negative results have been consistently obtained in a variety of studies using live animals and cultured cells. Mixed xylenes (undefined compositions) gave negative results in a number of bacterial assays, with and without metabolic activation. Negative results were obtained in a variety of tests live animals exposed by a number of exposure routes. Tests for chromosome damage in rats and mice (both bone-marrow cytogenetics and micronucleus) (by oral, injection and inhalation routes) were negative. Negative results were also obtained in dominant lethal assays in rats and mice following administration by injection of adequate maximum doses. (1)

PGMEA: No information available.

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

Consult local, state, provincial or territory authorities to know disposal methods.

SECTION XIV: TRANSPORT INFORMATION

This product is not regulated under the ADG Code, IMDG Code and IATA Code.

SECTION XV: REGULATORY INFORMATION

AICS: All the ingredients of this product are on the Australian Inventory of Chemical Substances.

SECTION XVI: OTHER INFORMATION

GLOSSARY

ACGIH:	American Conference of Governmental Industrial Hygienists
ADG:	Australian Dangerous Goods
AICS:	All the ingredients of this product are on the Australian Inventory of Chemical Substances.
CAS:	Chemical Abstract Services
GHS	Globally Harmonized System
IARC:	International Agency for Research on Cancer
LD_{50}/LC_{50}:	Less high lethal dose and lethal concentration published
NIOSH:	National Institute for Occupational Safety and Health
TLV-TWA:	Threshold Limit Value – Time-Weighted Average
WHS:	Work Health and Safety (Australia)

Reference:

(1) CHEMINFO (2015) Canadian Centre for Occupational Health and Safety, Hamilton (Ontario) Canada
(2) Supplier's SDS.

Code of SDS: **CA U DRU SS FS 124**
For more information: +61 2 8051 3153

Justification of the update:

- Australian version.