



MATERIAL SAFETY DATA SHEET

Section 1: Product and Company Identification

Product Name: KBS RustSeal
Product Use: Rust preventive. Corrosion sealing coating.
Synonym: RustSeal RS
Manufacturer: Advanced Protective Technologies
 2502 Beech St
 Suite 100
 Valparaiso IN 46383
Phone Number: 1 (219) 476-7170

Section 2: Hazards Identification

NFPA (USA)	WHMIS Classification (Canada)	Transport Symbol	Personal Protective Equipment
	<p>Consumer Product Not Regulated under WHMIS</p> <p>Classifications for workplace exposures:</p> B3 D1A D2A, D2B	<p>Consumer Commodity (See Section 14)</p>	

Emergency Overview: Appearance, Color and Odor: Liquid, color according to label specification, solvent odor.
 Harmful by inhalation. Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and skin contact.
 Toxic gases/fumes may be given off during burning or thermal decomposition.
 Closed container may forcibly rupture under extreme heat or when contents have been contaminated with water.
USA: This product is a hazardous material as defined by 29 CFR1910.1200, OSHA Hazard Communication Evaluation.
Canada: As packaged this product is intended for consumer use, subject to the labeling requirements of the CCCR.
 While this product is Consumer Commodity, this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Potential Health Effects: **ACUTE (short term): see Section 8 for exposure controls**

Relevant Route(s) of Exposure: Inhalation, Ingestion, Skin contact, Eye contact

Inhalation: Short-term over-exposure to vapors or mists can cause respiratory and mucous membrane irritation. Symptoms include eye and nose irritation, dry or sore throat, runny nose, shortness of breath, wheezing and laryngitis. Coughing with chest pain or tightness may also occur, frequently at night.
 Mists or vapors can cause headache, nausea, dizziness, reduced concentration, loss of coordination and other symptoms of central nervous system (CNS) depression.
 Overexposure to vapors, above the exposure limits listed in Section 8, may lead to bronchitis, bronchial spasm, and pulmonary edema (fluid in the lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms of fever and chills, may also occur. These symptoms may occur during exposure or may be delayed several hours.

Section 2: Hazards Identification, continued

- Ingestion:** Harmful if swallowed; may cause lung damage if swallowed. Ingestion may cause severe irritation to the mouth and digestive system. May cause vomiting. Small amounts of this product drawn into the lungs during ingestion or vomiting could cause a potentially life-threatening accumulation of fluid (pulmonary edema). Ingestion is not a typical route of occupational exposure.
- Skin:** Irritating to the skin with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause skin discoloration.
- Eye:** Direct contact with the eyes may cause severe irritation including tearing, excess redness and swelling of the conjunctiva.

Potential Health Effects

CHRONIC (long term): see Section 11 for additional toxicological data

Repeated or prolonged skin contact may cause dermatitis, with redness, blisters, cracking and swelling of the skin.

Sensitization through inhalation or skin exposure:

Individuals sensitized from prior contact to diisocyanates may experience asthma-like symptoms and/or skin reactions. Symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Effects may be delayed. Occasionally, breathing difficulty may be life threatening. Decreased lung function has been associated with overexposure to isocyanates.

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 behavioral changes have been observed in some people with long-term, high-level occupational exposure to organic solvents.

Medical Conditions Aggravated by Exposure:

Skin contact may aggravate an existing dermatitis. Asthma and other restrictive lung disorders, skin allergies and eczema may be aggravated by exposure to this product.

Interactions With Other Chemicals:

Not available.

Potential Environmental Effects:

Not available. Do not allow the product to be released into the environment.

Section 3: Composition / Information on Ingredients

Hazardous Ingredients:

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt.%</u>
Polyisocyanate prepolymer based on MDI	Not available	30 - 50
Solvent naphtha (petroleum) light	64742-95-6	10 - 30
Carbon black	1333-86-4	10 - 20
Titanium dioxide	13463-67-7	10 - 20
4,4'-Diphenylmethane Diisocyanate	101-68-8	10 - 15
1,2,4-Trimethylbenzene	95-63-6	5 - 10
Polymeric Diphenylmethane	9016-87-9	3 - 7
Diphenylmethane Diisocyanate (MDI)	26447-40-5	1 - 5
Xylene	1330-20-7	0.1 - 1.0

Note: See Section 8 of this MSDS for exposure limit data for these ingredients.

Section 4: First Aid Measures

Inhalation:	Take proper precautions (e.g. remove any sources of ignition). Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment, use the buddy system). Remove source of contamination or move victim to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen. Do not allow victim to move about unnecessarily. Symptoms of pulmonary edema may be delayed up to 48 hours after exposure. Quickly transport victim to an emergency care facility.
Eye Contact:	Quickly and gently blot or brush chemical off the face. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 15 – 20 minutes, while holding the eyelid(s) open. If a contact lens is present, do not delay irrigation or attempt to remove the lens. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately obtain medical attention.
Skin Contact:	As quickly as possible, remove contaminated clothing, shoes, and leather goods (e.g. watchbands, belts). Quickly and gently blot or brush away excess chemical. Immediately wash with lukewarm, gently flowing water and non-abrasive soap for 15 to 20 minutes. If breathing has stopped, trained personnel should immediately begin artificial respiration. Immediately obtain medical attention. Completely decontaminate clothing, shoes and leather goods before re-use, or discard.
Ingestion:	If discomfort occurs, obtain medical advice.
Notes to Physician:	Product contains diisocyanate. Persons sensitized to diisocyanates may have an allergic respiratory response or asthma-like symptoms.

Section 5: Fire Fighting Measures

Flammable Properties:	Combustible liquid (Flashpoint 40°C/104°F). During a fire, irritating, toxic and/or hazardous substances may be generated.
Suitable extinguishing Media:	Carbon dioxide, dry chemical powder, alcohol foam. Using water may cause frothing with increasing fire intensity. Water spray may be used to cool fire-exposed, closed containers.
Unsuitable extinguishing Media:	Water: Hot product can react vigorously with water, generating CO ₂ . Reaction can be vigorous.
Explosion Data	
Sensitivity to Mechanical Impact:	Not available
Sensitivity to Static Discharge:	Vapors from the heated liquid, at concentrations in the flammable range, can probably be ignited by a static discharge.
Specific Hazards arising from the Chemical:	Can release vapors that form explosive mixtures with air, at, or above 40°C. Liquid can float on water and may travel to distant locations and/or spread fire. Closed container may rupture violently when exposed to fire or excessive heat or when contents are contaminated with water (CO ₂ formed). During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.
Protective Equipment and precautions for firefighters:	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.
NFPA	
	Health: 2
	Flammability: 2
	Instability: 1

Section 6: Accidental Release Measures

Personal Precautions:	Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Do not touch the spilled material. Wear adequate personal protective equipment. Extinguish or remove all ignition sources. Ventilate area.
Environmental Precautions:	Prevent material from contaminating soil and from entering sewers or waterways.
Methods for Containment:	Isolate the spill area. Shut off the leak if it is safe to do so. Contain the liquid immediately using a suitable inert absorbent (sand, clay, vermiculite).
Methods for Clean-up:	Scoop up contaminated absorbents and place into suitable disposal containers. Collect all spilled material, contaminated absorbents and contaminated water for proper treatment or disposal. Contaminated absorbents pose the same hazards as the spilled product. Flush the contaminated area with water.
Other Information:	Not available

Section 7: Handling and Storage

Handling:	Prevent contact with eyes, skin and clothing. Wear protective goggles and gloves. Avoid breathing mists and vapors from this product. Wash hands thoroughly after handling this product. Observe the recommended exposure limits (Section 8). See Section 8 for Personal Protective Clothing and Equipment. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating.
Storage:	KEEP LOCKED UP AND OUT OF THE REACH OF CHILDREN. Store in a cool, dry, well ventilated area. Keep from freezing. Store product between 5 and 35°C (41 and 95°F). Keep container tightly closed when not in use. Store product in its original container. Do not reseal the container if contamination of the product is suspected.

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines

<u>Ingredient</u>	<u>ACGIH TLV (8-hr. TWA)</u>	<u>U.S. OSHA PEL (8-hr. TWA)</u>	<u>Ontario (Canada) TWA/EL</u>
Polyisocyanate prepolymer based on MDI	Not established	Not established	Not established
Solvent naphtha (petroleum) light	Not established	Not established	Not established
Carbon black	3.5 mg/m ³	3.5 mg/m ³	3.5 mg/m ³
Titanium dioxide	10 mg/m ³	15 mg/m ³ (total dust)	10 mg/m ³
4,4'-Diphenylmethane Diisocyanate	0.005 ppm	0.2 mg/m ³ Ceiling (0.02 ppm)	0.005 ppm Designated Substance in Ontario
1,2,4-Trimethylbenzene	25 ppm	25 ppm	25 ppm 123 mg/m ³
Polymeric Diphenylmethane	Not established	Not established	Not established
Diphenylmethane Diisocyanate (MDI)	0.051 (0.005 ppm)	0.2 mg/m ³ Ceiling (0.02 ppm)	0.005 ppm Designated Substance
Xylene	100 ppm STEL: 150 ppm	100 ppm/435 mg/m ³ STEL: 150 ppm/650 mg/m ³	100 ppm/435 mg/m ³ STEV: 150 ppm/650 mg/m ³

Section 8: Exposure Controls/Personal Protection, continued

Exposure Controls

Engineering Controls: Engineering control methods to reduce hazardous exposures are preferred. Methods include mechanical ventilation (dilution and local exhaust), process or personnel enclosure, control of process conditions and process modification. Administrative controls and personal protective equipment may also be required.

Personal Protection:

Eye/Face Protection: Wear chemical splash goggles. Wear a face shield when needed to prevent splashing into the face.

Skin Protection: Wear impermeable protective gloves and clean body-covering to prevent contact with the skin. Impermeable apron, arm covers and boots should be worn when needed to prevent skin contact. Butyl rubber, neoprene, nitrile, or Viton™ protective clothing materials are recommended. Silver Shield/4H™ (polyethylene/ethylene vinyl alcohol), Responde™, Tychem™.

Respiratory Protection: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or Canadian Standards Association (CSA) Standard Z94.4-2002 must be followed whenever workplace conditions warrant a respirator's use.

NIOSH recommendations for 4,4-Diphenylmethane diisocyanate concentrations in air:
Up to 0.5 mg/m³: SAR (Supplied Air Respirator).
Up to 1.25 mg/m³: SAR operated in a continuous-flow mode.
Up to 2.5 mg/m³: Full-facepiece SCBA; or full-facepiece SAR.
Up to 75 mg/m³: Positive pressure, full-facepiece SCBA.

Emergency or planned entry into unknown concentrations or IDLH conditions: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

Other Protective Equipment: In industrial settings, have an eyewash fountain and safety shower in the immediate work area.

General Hygiene Measures: Remove contaminated clothing promptly. Launder contaminated clothing before re-wearing or discard. Do not eat, drink or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping.

Section 9: Physical and Chemical Properties

Physical State:	Liquid	Flash Point & method:	40°C (104°F); method not available
Appearance, Color and Odor:	Various colors, color specified on label	Autoignition Temperature:	220°C (248°F)
Odor Threshold:	Not available	Flammability Limits in Air:	Not applicable
pH:	Not available	Vapor Pressure:	Not available
Specific Gravity: (water = 1)	1.09	Vapor Density: (Air = 1)	Not available
Partition coefficient: (n-octanol/water)	Not available	Evaporation Rate: (n-Butyl Acetate = 1)	Not available
Solubility:	Insoluble in water	Boiling Point/Range:	100°C (212°F)
Viscosity:	Not available	Freezing Point:	-5°C (23°F)
Decomposition Temperature:	Not available		

Section 10: Stability and Reactivity

Chemical Stability:	Stable under recommended conditions of storage and use.
Conditions to Avoid:	Avoid moisture, contact with water, heat and direct sunlight.
Incompatible Materials:	Water - Reacts slowly, forming carbon dioxide and inert material comprised of non-toxic polyureas which could rupture closed containers. 4,4'-Methylene dianiline is formed as an intermediate product in this reaction. Above 50°C (122°F), the reaction may become progressively more vigorous. Amines, alcohols, acids, bases - May react violently with generation of heat. Metal compounds (e.g. organotin catalysts) - May polymerize with the generation of heat and pressure. Amides, phenols, mercaptans, urethanes, ureas and surface active compounds (surfactants, e.g. non-ionic detergents) - May react vigorously or violently with the generation of heat.
Hazardous Decomposition Products:	Not available
Possibility of Hazardous Reactions:	Diisocyanate may undergo uncontrolled exothermic polymerization upon contact with incompatible materials, especially strong bases, such as triethylamine and sodium hydroxide, trialkyl phosphines, potassium acetate, many metal compounds soluble in organic media, or if heated above 204°C. The resulting pressure build-up could rupture closed containers.

Section 11: Toxicological Information

Acute Toxicity Data

<u>Ingredient</u>	<u>LD₅₀ Oral</u> (mg/kg)	<u>LD₅₀ Dermal</u> (mg/kg)	<u>LC₅₀ Inhalation</u> (4 hrs.) (mg/m ³)
Polyisocyanate prepolymer based on MDI	>2 000 (rat)	Not available	490 (rat)
Solvent naphtha (petroleum) light	8 400 (rat)	Not available	Not available
Carbon black	Not available	Not available	6 7500 (rat)
Titanium dioxide	Not available	Not available	Not available
4,4'-Diphenylmethane Diisocyanate	9 200 (rat)	>10 000 (rabbit)	178 (rat)
1,2,4-Trimethylbenzene	5 000 (rat)	Not available	18 000 (rat)
Polymeric Diphenylmethane	>10 000 (rat)	>9 400 (rabbit)	490 (rat)
Diphenylmethane Diisocyanate (MDI)	Not available	Not available	Not available
Xylene	> 5 200 (rat, mouse)	> 1 700 (rabbit)	> 6 300 ppm (rat)

Chronic Toxicity Data

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

<u>Ingredient</u>	<u>ACGIH</u>	<u>IARC</u>	<u>NTP</u>	<u>OSHA</u>
Polyisocyanate prepolymer based on MDI	Not listed	Not listed	Not listed	Not listed
Solvent naphtha (petroleum) light	Not listed	Not listed	Not listed	Not listed
Carbon black	A4	Group 2B	Not listed	Not listed
Titanium dioxide	A4	Group 2B	Not listed	Not listed
4,4'-Diphenylmethane Diisocyanate	Not listed	Group 3	Not listed	Not listed
1,2,4-Trimethylbenzene	Not listed	Not listed	Not listed	Not listed
Polymeric Diphenylmethane	Not listed	Group 3	Not listed	Not listed
Diphenylmethane Diisocyanate (MDI)	Not listed	Group 3	Not listed	Not listed
Xylene	A4	Group 3	Not listed	Not listed

Section 11: Toxicological Information, continued

Carcinogenicity designations:

ACGIH: (American Conference of Governmental Industrial Hygienists)
A4-Not Classifiable as a Human Carcinogen
IARC: (International Agency for Research on Cancer)
Group 2B: - The agent is possibly carcinogenic to humans.
Group 3: Not classifiable as to its carcinogenicity in humans.
NTP: (National Toxicology Program)
OSHA: (US Occupational Safety and Health Administration)

Irritation: Irritating to the eyes and skin and respiratory system.

Corrosivity: Not applicable

Sensitization: Individuals sensitized from prior contact to diisocyanates may experience asthma-like symptoms and/or skin reactions.

Neurological Effects: 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 behavioral changes have been observed in some people with long-term, high-level occupational exposure to organic solvents.

Genetic Effects: Not available

Reproductive Effects: Not available

Developmental Effects: Mixed xylenes are considered fetotoxic, based on observations of reduced fetal weight, delayed ossification and persistent behavioural effects in the absence of maternal toxicity.

Other Adverse Effects: Not available

Target Organ Effects: Eyes, skin, respiratory system, Central Nervous System (CNS).

Section 12: Ecological Information

Ecotoxicity: Not available

Persistence/Degradability: Not expected to be readily bio-degradable.

Bioaccumulation/Accumulation: Not available

Mobility: Not available

Other adverse effects: Not available. Do not allow the material to be released into the environment.

Section 13: Disposal Considerations

Waste Disposal Method: Do NOT discard into any sewers, on the ground or into any body of water. Store material for disposal as indicated in Section 7 Handling and Storage.

US EPA Waste Number: Dispose of in accordance with local, state and federal laws and regulations.

Canada: Dispose of in accordance with local, provincial and federal laws and regulations.

Section 14: Transport Information:

U.S. Hazardous Materials Regulation (DOT 49CFR):	As packaged this material can be shipped as a "Consumer Commodity ORM-D" Exemption. Shipment from US going to Canada may transport as per 49 CFR (TDG Section 9.1)
Canadian Transportation of Dangerous Goods (TDG):	As packaged this material can be shipped as a "Consumer Commodity" as per part 1.17 of the TDG Regulations. Shipment from Canada to the US may transport as per TDG Regulations (49 CFR Part 171.12a)
ADR/RID:	As packaged this product may be shipped as a Limited Quantity.
IMDG:	UN1268 ; PETROLEUM DISTILLATES N.O.S. (Naphtha), Class 3, PG III, Flashpoint 40°C, LIMITED QUANTITY
Marine Pollutants:	Not applicable
ICAO/IATA:	UN1268 ; PETROLEUM DISTILLATES N.O.S. (Naphtha), Class 3, PG III

Section 15: Regulatory Information

USA

TSCA Status:	All ingredients in the product are listed on the TSCA inventory.
SARA Title III	
Sec. 302/304:	None
Sec. 311/312:	Acute ; Chronic ; Combustible
Sec. 313:	Diisocyanates (101-68-8 and 9016-87-9); 1,2,4-Trimethylbenzene (95-63-6); Xylene (1330-20-7).
CERCLA RQ:	For MDI (CAS # 101-68-8) 5000 pounds (2270 kg)
California Prop 65:	This product contains the following chemicals known to the State of California to cause cancer: Carbon Black*. *As sold, this product does not contain Carbon Black as airborne, or unbound particles of respirable size, and is therefore not subject to California Prop 65.

Canada

	This product has been classified in accordance with the hazard criteria of the <i>Controlled Products Regulations</i> and the MSDS contains all the information required by the <i>Controlled Products Regulations</i> .
WHMIS Classification: (for workplace exposures)	B3 – Combustible liquid D1A – Immediate and serious toxic effects D2A – Materials causing other toxic effects – Due to respiratory sensitization and embryotoxicity. D2B – Material causing other toxic effects – Due to skin and eye irritation.
NSNR Status:	All ingredients in the product are listed on Canada's Domestic Substances List (DSL).
NPRI Substances:	Solvent naphtha (petroleum) light (64742-95-6); 4,4'-Diphenylmethane Diisocyanate (101-68-8); 1,2,4-Trimethylbenzene (95-63-6); Polymeric Diphenylmethane (9016-87-9); Xylene (1330-20-7). These substances are all NPRI reportable.

Section 16: Other Information

Prepared by:	LEHDER Environmental Services Limited 519-336-4101 www.lehder.com
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Disclaimer:	While LEHDER Environmental Services Limited believes that the data set forth herein is accurate, as of the date hereof, LEHDER makes no warranty with respect thereto and expressly disclaims all liability for reliance thereon. Such data is offered solely for your consideration, investigation and verification.