

MATERIAL SAFETY DATA SHEET

MSDS # 1130 – IKO ARMOURGARD VAPOUR BARRIER ADHESIVE (Summer and Winter Grade)

BramCal Production Co.

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WHMIS: D-1, D-2A

I – PRODUCT INFORMATION

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|---------------------|--|
| PRODUCT NAME | IKO ARMOURGARD VAPOUR BARRIER ADHESIVE |
| PRODUCT TYPE | ASPHALT/CHLORINATED SOLVENT CUTBACK |
| PRODUCT USE | ROOFING ADHESIVE |

II – HAZARDOUS INGREDIENTS

| INGREDIENTS | % | CAS # | EXPOSURE LIMITS | LD50/LC50 (SPECIES & ROUTE) |
|--------------------|--------------------------------------|-----------|---|---|
| Asphalt, petroleum | 40 – 70 | 8052-42-4 | OSHA PEL-TWA 5mg/m ³ ACGIH TLV-TWA 0.5mg/m ³ | |
| Isopropanol | 0.1 – 1 | 67-63-0 | | LD50 (oral-rat): 5000 mg/kg LC50 (inhalation-rat) 22600 ppm (4 hour exposure) |
| Perchloroethylene | 0.1 – 1 | 127-18-4 | ACGIH TLV-STEL 100 PPM ACGIH TLV-TWA 25 PPM OSHA PEL-CEILING 200 PPM OSHA PEL-PEAK 300 PPM OSHA PEL-TWA 100 PPM | LD50 (oral, rat):8850 mg/kg LC50: 5520 ppm (4-hour exposure) |
| Sulfur | 3 - 7 | 7704-34-9 | | |
| Toluene | 0.1 - 1 | 108-88-3 | | LD50 (oral, rat):2600-7500 mg/kg LC50 (rat): 7350 ppm (4-hour exposure) LD50 (dermal, rabbit):12225 mg/kg |
| Trichloroethylene | 15 – 40 (summer) 30 – 60 (winter) | 79-01-6 | ACGIH TLV-TWA 10 PPM ACGIH TLV-SEL 25 PPM OSHA PEL-TWA 50 PPM OSHA STEL-TWA 200 PPM | |
| Xylene | 0.1 – 1 | 1330-20-7 | ACGIH TLV-STEL 150 PPM ACGIH TLV-TWA 100 PPM OSHA PEL-TWA 100 PPM | LD50 (oral-rat): 5400 mg/kg LD50 (dermal, rabbit):12180 mg/kg LC50 (rat): 6350 ppm (4-hour exposure) |

III- PHYSICAL DATA

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|---|--|---|---|
| PHYSICAL STATE <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> SOLID | ODOUR & APPEARANCE Black liquid with chlorinated solvent odor. | ODOUR THRESHOLD (ppm) Not available | VOLATILE (VOL.) 28-438% <500 g/L |
| VAPOUR PRESSURE (mm Hg) 58 at 20°C | VAPUR DENSITY (AIR=1) 4.54 | EVAPORATION RATE (BuAc=1) Approx 3 | BOILING POINT (°C) Approx 86 |
| FREEZING POINT (°C) Not applicable | SPEC. GRAVITY (WATER – 1) 1.18-1.22 | DENSITY (g/ ml) N/A | SOLUBILITY (IN WATER) Insoluble |
| COEF. OF WATER/OIL DIST. Not available | | pH Not applicable | |

IV – FIRE & EXPLOSION HAZARD

| | | |
|--|---|---|
| FLAMMABILITY <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | CONDITIONS OF FLAMMABILITY Not applicable | AUTO-IGNITION TEMP (°C) Not available |
| FLASH POINT (°C) None METHOD: ----- | FLAMMABLE LIMITS (% VOLUME) LOWER: Not applicable UPPER: Not applicable TDG FLAMMABILITY CLASS N/A | SENSITIVITY TO MECHANICAL IMPACT None SENSITIVITY TO STATIC DISCHARGE None |
| HAZARDOUS COMBUSTION PRODUCTS During a fire, irritating and highly toxic gases may be generated. | MEANS OF EXTINCTION Chemical foam, carbon dioxide (CO ₂), dry chemical. Water fog for large fires | SPECIFIC FIRE FIGHTING PROCEDURES Self-contained respiratory equipment when product is exposed to flames or fire as it will emit very toxic fumes on thermal degradation. |

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V – PREPARATION OF M.S.D.S.

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|---------------------------------------|---|-------------------------------|
| PREPARED BY: HSE Department | PHONE NUMBER (905) 457-2880 EXT. 3354 | DATE August 3, 2015 |
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VI – REACTIVITY DATA

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| CHEMICAL <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
| CONDITIONS TO AVOID: Keep away from ignition sources, heat, sparks and flames. |
| INCOMPATIBILITY (SUBSTANCE TO AVOID) Avoid contact with strong acids, strong bases, strong oxidizers, chemically active metals, copper, aluminum powder, aluminum chloride, potassium nitrate, and strong reducing agents. |
| CONDITIONS OF REACTIVITY Not reactive under normal conditions of use. |
| HAZARDOUS DECOMPOSITION PRODUCTS Toxic and irritating gases or vapours including hydrogen chloride, phosgene, chlorine, carbon monoxide (CO), carbon dioxide (CO ₂), and oxides of nitrogen and sulfur. |

VII – TOXICOLOGICAL PROPERTIES

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| THRESHOLD LIMIT VALUE Not available | LC50/LD50 (estimated) See Hazardous Ingredients Table | | |
| ROUTE OF ENTRY | <input checked="" type="checkbox"/> SKIN CONTACT | <input type="checkbox"/> SKIN ABS | <input checked="" type="checkbox"/> EYES <input checked="" type="checkbox"/> INGESTION <input checked="" type="checkbox"/> INHALATION |
| EFFECTS OF ACUTE EXPOSURE | Vapour may cause light-headedness, headache, nausea, drowsiness, loss of coordination and respiratory tract irritation. Causes eye and skin irritation. | | |
| EFFECTS OF CHRONIC EXPOSURE | Prolonged or repeated contact with skin will cause irritation, defatting, dermatitis. May also be injurious to liver, kidneys and central nervous system. | | |
| IRRITANCY After prolonged or frequently repeated contacts. | SENSITIZATION Not available | SYNERGISTIC MATERIALS Not available | |
| <input checked="" type="checkbox"/> CARCINOGENICITY | <input type="checkbox"/> REPRODUCTIVE EFFECTS | <input type="checkbox"/> TERATOGENICITY | <input type="checkbox"/> MUTAGENICITY |
| Perchloroethylene and Trichloroethylene are classified as carcinogens. | | | |
| WARNING: This product may contain oxidized bitumens. The International Agency for Research on Cancer (the "IARC") published a monograph in 2013 which concluded that "occupational exposure to oxidized bitumens and their emissions during roofing operations are probably carcinogenic to humans." The IARC found that there is "limited evidence" in humans for the carcinogenicity of occupational exposures to bitumens and bitumen emissions during roofing and mastic-asphalt work. The IARC also found that there is "sufficient evidence" in experimental animals for carcinogenicity of fume condensates generated from oxidized bitumen. All other evidence of cancer in humans and experimental animals was judged "inadequate" or "limited." The physical nature of this product may help limit any inhalation hazard from oxidized asphalt during application in its hardened state. However, physical forces such as grinding, drilling and other demolition work on this product may liberate dust containing oxidized asphalt. Burning or heating of the product may cause fumes, vapors or mists. | | | |

VIII – FIRST AID MEASURES

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| SKIN | Remove contaminated clothing and shoes. Wash affected areas with soap and water. Get medical attention immediately if irritation (redness, rash, blistering) develops and persists. |
| EYES | In case of contact, hold eyelids apart and immediately flush eyes with plenty of lukewarm water for at least 20 minutes. Get medical attention immediately. |
| INHALATION | Remove victim to fresh air. Administer artificial respiration if breathing has stopped, administer oxygen. Get medical attention immediately. |
| INGESTION | DO NOT INDUCE VOMITING. Get medical attention immediately. If vomiting occurs, take care to prevent aspiration into lungs. |

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| IX – PREVENTIVE MEASURES | |
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| PERSONAL PROTECTIVE EQUIPMENT | EYES: Safety glasses with side shields or goggles recommended. GLOVES: Required solvent resistant type. CLOTHING: Overalls RESPIRATORY: Use approved, organic vapour mask in confined areas or if applied by spray. |
| ENGINEERING CONTROLS (VENTILATION, ETC.) | Ventilation required in confined areas. Local exhaust, to maintain TLV. |
| LEAK AND SPILL PROCEDURE | Use proper protective equipment. Provide adequate ventilation. |
| WASTE DISPOSAL | Dispose of in accordance with applicable federal state / provincial and local government regulations. DO NOT INCINERATE. |
| HANDLING PROCEDURES | Normal. |
| STORAGE REQUIREMENTS | Avoid high temperature. |
| SHIPPING INFORMATION | Poisonous liquids, N.O.S. UN2810, Class 6.1 (9.2) PG III |

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