

MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet meets or exceeds the requirements of the Canadian Controlled Product Regulations (WHMIS)

1. Product and Supplier Identification

Product: Decographic Dyes – Various Colors

Product Use: Concrete Topping

Manufacturer: Smart Surface Technology Inc.,
Unit 143 – 14273 Knox Way,
Richmond, B.C., Canada, V6V 2Z7
Telephone: (604) 244-3122
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24-Hour Emergency Response Telephone for Transport Emergencies ONLY: +1 (613) 996-6666

2. Composition

Component	% (w/w)	Exposure Limits/ACGIH ¹	LD ₅₀	LC ₅₀
Acetone CAS No 67-64-1	20-50	TLV-TWA: 500 ppm, Basis, irritation Carcinogenicity designation A4 ²	5,800 mg/kg (female rat/oral)	30,000 ppm (male rat/4hour)
Methanol CAS No 67-56-1	10-25	TLV-TWA: 200 ppm, Basis, neuropathy, vision, and Central Nervous System	5,628 mg/kg (rat/oral)	64,000 ppm (rat/4hour)
Toluene CAS No 108-88-3	10-20	TLV-TWA: 50 ppm Basis, Central Nervous System Carcinogenicity designation A4 ²	2,600-7,500 mg/kg (rat/oral)	8,800 ppm (rat/4hour)
Methyl ethyl ketone CAS 78-93-3	5-10	TLV-TWA: 200 ppm Basis, irritation, Central Nervous System	2,740 mg/kg (adult male rat/oral)	11,700 ppm (rat/4hour)
Isobutyl acetate CAS No 110-19-0	4-8	TLV-TWA: 150 ppm Basis, irritation	13,400 mg/kg (rat/oral)	8,000 ppm (rat/4hour)
2-(2-ethoxyethoxy)-ethanol CAS No 37421-08-2	2-4	No data	No data	No data
Ethyl Acetate CAS No 141-78-6	1-3	TLV-TWA: 400 ppm Basis, irritation	10,200 mg/kg (rat/oral)	19,600 ppm (rat/4hour)
CI Solvent Black	1-3	No data	No data	No data

¹ American Conference of Governmental Industrial Hygienists (ACGIH). Exposure limits may vary from time to time and from one jurisdiction to another. Check with local regulatory agency for the exposure limits in your area.

² Carcinogenicity Designation A4: Not classifiable as a human carcinogen. Inadequate data on which to classify this substance as a human and/or animal carcinogen.

3. Hazards Identification

Routes of Entry:

Skin contact: Moderate
Skin absorption:
Eye contact: Moderate
Ingestion: Major
Inhalation: Major

Effects of Short-Term (Acute) Exposure:

Inhalation: Inhalation of high airborne concentrations can also irritate mucous membranes, cause headaches, sleepiness, nausea, confusion, loss of consciousness, digestive and visual disturbances and even death. Depending upon severity of poisoning and the promptness of treatment, survivors may recover completely or may have permanent blindness, vision disturbances and/or nervous system effects. Concentrations in air exceeding 1000 ppm may cause irritation of the mucous membranes.

Skin Contact: This product is moderately irritating to the skin. It may be absorbed through the skin and harmful effects have been reported by this route of entry. Effects are similar to those described in "Inhalation"

Eye Contact: Mild to moderate eye irritant. High vapour concentration or liquid contact with eyes causes irritation, tearing and burning.

Ingestion: Swallowing even small amounts of this product could potentially cause blindness or death. Effects of sub lethal doses may be nausea, headache, abdominal pain, vomiting and visual disturbances ranging from blurred vision to light sensitivity.

Effects of Long-Term (Chronic) Exposure: Repeated exposure by inhalation or absorption may cause systemic poisoning, brain disorders, impaired vision and blindness. Inhalation may worsen conditions such as emphysema or bronchitis. Repeated skin contact may cause dermal irritation, dryness and cracking.

Medical Conditions Aggravated By Exposure: Emphysema or bronchitis.

4. First Aid Measures

Note: Emergency assistance may also be available from the local poison control centre.

Eye Contact: Remove contact lenses if worn. In case of contact, immediately flush eyes with plenty of clean running water for at least 15 minutes, lifting the upper and lower eyelids occasionally. Obtain medical attention.

Skin Contact: In case of contact, remove contaminated clothing. In a shower, wash affected areas with soap and water for at least 15 minutes. Seek medical attention if irritation occurs or persists. Wash clothing before reuse.

Inhalation: Remove to fresh air, restore or assist breathing if necessary. Obtain medical attention.

Ingestion: Swallowing methanol is potentially life threatening. Onset of symptoms may be delayed for 18 to 24 hours after digestion. If conscious and medical aid is not immediately available, do not induce vomiting. In actual or suspected cases of ingestion, transport to medical facility immediately.

General Comments:

Good personal hygiene is essential. Avoid eating, smoking or drinking in work areas.

NOTE TO PHYSICIAN: Acute exposure to this product, either through ingestion or breathing high airborne concentrations can result in symptoms appearing between 40 minutes and 72 hours after exposure. Symptoms and signs are usually limited to CNS, eyes and gastrointestinal tract. Because of the initial CNS's effects of headache, vertigo, lethargy and confusion, there may be an impression of ethanol intoxication. Blurred vision, decreased acuity and photophobia are common complaints. Treatment with ipecac or lavage is indicated in any patient presenting within two hours of ingestion. A profound metabolic acidosis occurs in severe poisoning and serum bicarbonate levels are a more accurate measure of severity than serum methanol levels. Treatment protocols are available from most major hospitals and early collaboration with appropriate hospitals is recommended.

5. Fire Fighting Measures

Flash point: 18°C (TCC)
Autoignition temperature: 385 °C (Methanol)
Lower Explosive Limit: 1.1% (Toluene)
Upper Explosion Limit: 36% (Methanol)
Sensitivity to Impact: Low

Sensitivity to Static Discharge: Low

Hazardous Combustion Products: Toxic gases and vapours; oxides of carbon and formaldehyde.

Extinguishing Media: Small fires: Dry chemical, CO₂, water spray
Large fires: Water spray, AFFF(R) (Aqueous Film Forming Foam (alcohol resistant)) type with either a 3% or 6% foam proportioning system.

Fire Fighting Instructions: Stay upwind! Isolate and restrict area access. Use fine water spray or fog to control fire spread and cool adjacent structures or containers. Contain fire control water for later disposal. Fire fighters must wear full face, positive pressure, self-contained breathing apparatus or airline and appropriate protective clothing. Protective fire fighting structural clothing is not effective protection from methanol. Do not walk through spilled product.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX:

HEALTH: 1

FLAMMABILITY: 3

REACTIVITY: 0

6. Accidental Release Measures

Overview: Flammable liquid! Release can cause an immediate risk of fire and explosion. Eliminate all ignition sources, stop leak and use absorbent materials. If necessary, contain spill by diking. Fluorocarbon alcohol resistant foams may be applied to spill to diminish vapour and fire hazard. Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Wear adequate personal protection and remove all sources of ignition. Notify all governmental agencies as required by law.

Personal Protection: Full face, positive pressure self-contained breathing apparatus or airline, and protective clothing must be worn. **Environmental Precautions:** See Section 12

Remedial Measures: Flammable liquid! Release can cause an immediate fire/explosion hazard. Eliminate all sources of ignition, stop leak and use absorbent materials. Collect liquid with explosion proof pumps. Do not walk through spill product as it may be on fire and not visible.

Large Spills: If necessary, contain spill by diking. Fluorocarbon alcohol resistant foams may be applied to spill to diminish vapour and fire hazard. Collect liquid with explosion proof pumps.

Small Spills: Soak up spill with non-combustible absorbent material. Prevent spilled product from entering sewers, confined spaces, drains, or waterways. Restrict access to unprotected personnel. Full. Put material in suitable, covered, labeled containers. Flush area with water.

7. Handling and Storage

Handling Procedures: No smoking or open flame in storage, use or handling areas. Use explosion proof electrical equipment. Ensure proper electrical grounding procedures are in place.

Storage: Store in totally enclosed equipment, designed to avoid ignition and human contact. Tanks must be grounded, vented, and should have vapour emission controls. Tanks must be diked. Avoid storage with incompatible materials. Store in compatible containers. Plastics may be used for short term storage, they are generally not recommended for long-term storage due to deterioration effects and the subsequent risk of contamination.

8. Exposure Controls, Personal Protection

Engineering Controls: In confined areas, local and general ventilation should be provided to maintain airborne concentrations below permissible exposure limits. Ventilation systems must be designed according to approved engineering standards.

Respiratory Protection: NIOSH approved supplied air respirator when airborne concentrations exceed exposure limits.

Skin protection: Butyl and nitrile rubbers are recommended for gloves. Check with manufacturer. Wear chemical resistant pants and jackets, preferably of butyl or nitrile rubber. Check with manufacturer.

Eye and Face Protection: Face shield and chemical splash goggles when transferring is taking place.

Footwear: Chemical resistant, and as specified by the workplace.

Other: Eyewash and showers should be located near work areas. NOTE: PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean, fit and use. Consult a competent industrial

hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.

9. Physical and Chemical Properties

Appearance: Liquid, clear, various colors
Odour: Mild characteristic solvent odour
Odour Threshold: detection: 4.2 - 5960 ppm (methanol)
pH: Not applicable
Vapour Pressure: 24.7 kPa @ 20°C (acetone)
Solubility: Partially soluble
Vapour Density: 4.0 @ 15 °C (isobutyl acetate)
Freezing Point: -97.8 °C
Boiling Point: 64 °C @ 101.3 kPa
Critical Temperature: 239.4 °C (methanol)
Relative Density: 0.79 – 0.82
Evaporation Rate: 6.2(n-butyl acetate =1), (ethyl acetate)
Partition Coefficient: No data
Solubility in other Liquids: Not determined

10. Stability and Reactivity

Chemical Stability: Yes
Incompatibility: Yes. Avoid contact with strong oxidizers, strong mineral or organic acids, and strong bases. Contact with these materials may cause a violent or explosive reaction. Attacks certain types of rubber, plastic, and coatings. Reacts with activated carbon, aluminum and its alloys, alkali metals and their hydroxides.
Conditions of Reactivity: Presence of incompatible materials and ignition sources.
Hazardous Decomposition Products: Formaldehyde, carbon dioxide, and carbon monoxide.
Hazardous Polymerization: Will not occur.

11. Toxicological Information

Acute Exposure: See Section 3
Chronic Exposure: See Section 3.
Exposure Limits: See Section 2.
Irritancy: See Section 3.
Sensitization: No
Carcinogenicity: Not listed by IARC, NTP, ACGIH, or OSHA as a carcinogen.
Teratogenicity: No
Embryotoxicity: Yes, methyl ethyl ketone
Reproductive toxicity: Methanol is reported to cause birth defects in rats exposed to 20,000 ppm
Mutagenicity: Insufficient data
Synergistic products: None Known

12. Ecological Information

Environmental toxicity: No data

Biodegradability: No data

13. Disposal Considerations

Review federal, provincial or state, and local government requirements prior to disposal. Store material for disposal as indicated in Storage Conditions. Disposal by controlled incineration may be acceptable.

14. Transport Information

Canadian Transportation of Dangerous Goods Regulations: Coating Solution, Class 3,
UN 1139, PG II

International Air Transport Association (IATA): Coating Solution, Class 3,
UN 1139, PG II

International Maritime Organization (IMO): Coating Solution, Class 3,
UN 1139, PG II
Flash Point = -18°C
EmS: F-E; S-E
Stowage Category "B"

US Department of Transport (49CFR): Coating Solution, Class 3,
UN 1139, PG II

15. Regulatory Information

CANADIAN FEDERAL REGULATIONS:

CEPA, DOMESTIC SUBSTANCES LIST: Listed

WHMIS CLASSIFICATION: B2, D1A

UNITED STATES REGULATIONS:

29CFR 1910.1200 (OSHA): Hazardous

40CFR 116-117 (EPA): Hazardous

40CFR 355, Appendices A and B: Subject to Emergency Planning and Notification

40CFR 372 (SARA Title III): Listed

40CFR 302 (CERCLA): Listed

16. Other Information

Original Preparation Date: June 6, 2006

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Disclaimer: This Material Safety Data Sheet was prepared in accordance with criteria and requirements of the Hazardous Products Act and the Controlled Products Regulations using information provided by the manufacturer and other sources including CCINFO (Chemical Information published by the Canadian Centre for Occupational Health and Safety). The information in the Material Safety Data Sheet is offered for your consideration and guidance when exposed to this product. The data in this MSDS does not apply to use with any other product or in any other process.

This Material Safety Data Sheet may not be changed, or altered in any way without the expressed knowledge and permission of Smart Surface Technology Inc.

Latest revision: None