

MATERIAL SAFETY DATA SHEET
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***** PRODUCT IDENTIFICATION *****

TRADE NAME: VINYLESTER GEL COAT IN MONOMER

CAS NUMBER: MIXTURE PRODUCT CODE: B-9050
PRODUCT DESCRIPTION: ALUMINUM VE HYBRID TOOLING GEL COAT
CHEMICAL FAMILY: NA DOT CLASS: FLAMMABLE LIQUID
MOLECULAR FORMULA: NA DOT SHIP NAME: RESIN SOLUTION--UN1866
MOLECULAR WEIGHT: NA

***** PRODUCT HAZARD SUMMARY *****

HMIS (CODE)
HEALTH: (2)
* CAUTION!
* MAY BE HARMFUL IF SWALLOWED OR INHALED
* MAY BE IRRITATING TO THE SKIN EYES AND RESPIRATORY TRACT
* MAY CAUSE ALLERGIC SKIN REACTION
* HEATED MATERIAL MAY CAUSE THERMAL BURNS

FLAMMABILITY: (3)
* WARNING! FLAMMABLE LIQUID & VAPOR

REACTIVITY: (2)
* CAUTION! UNSTABLE AT HIGH TEMPERATURES

SPECIFIC HAZARD: (---)

***** IMPORTANT COMPONENTS *****

INGREDIENT	CAS #	%	OSHA PEL	ACGIH-TLV
STYRENE MONOMER [1]	000100-42-5	39	50 ppm	20 ppm
VINYLESTER RESIN	MIXTURE	18 - 28	50 ppm	50 ppm
UNSATURATED POLYESTER RESIN	MIXTURE	17 - 27	50 ppm	50 ppm
ALUMINUM POWDER	007429-90-5	3 - 13	10 mg/m3	10 mg/m3
SILICON DIOXIDE	007631-86-5	1 - 8	20 mppcf	10 mg/m3

REMAINING COMPONENTS NOT DETERMINED TO BE HAZARDOUS AND/OR HAZARDOUS
COMPONENTS PRESENT AT LESS THAN 1.0% (0.1% FOR CARCINOGENS)

[1] NOTE: This chemical subject to reporting requirements under
SARA Title III, Section 313

***** PHYSICAL DATA *****

BOILING POINT, °C (°F): >145 (293)
VAPOR PRESSURE, mm Hg: <5 @ 20°C (66°F)
VAPOR DENSITY (AIR=1): 3.6 (styrene)
SOLUBILITY IN WATER: NEGLIGIBLE
SPECIFIC GRAVITY (H₂O=1): 1.13 +/- 5% @ 25°C
PERCENT VOLATILE: 39
EVAPORATION RATE (ETHER=1): <1
APPEARANCE/ODOR: GRAY LIQUID WITH PUNGENT ODOR

***** FIRE AND EXPLOSION HAZARD DATA *****

FLASH POINT °C (°F): 30-35 (87-95)
FLAMMABILITY CLASSIFICATION: CLASS 1C
AUTOIGNITION TEMPERATURE, °C (°F): 490 (914)
FLAMMABILITY LIMITS IN AIR (% by volume): LOWER: 1.1 UPPER: 6.1
BASIC FIREFIGHTING PROCEDURES:

Use dry chemical, all purpose or polar AFFF foam or water spray to extinguish fire. Water or foam may cause frothing, with further application leading to boilover. Foam may have limited effectiveness on three dimensional fires. Use water spray to cool fire-exposed containers, structures and to protect personnel. Use water to flush spills away from source of ignition. Do not flush down public sewers.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Fire may produce poisonous or irritating gas, fumes or vapor. Excessive heat may trigger polymerization of confined material. Containers may explode in heat of fire. Styrene vapors are uninhibited and may form polymers in vents or flame arrestors of storage tanks, resulting in stoppage of vents. Exposed firefighters should wear MSHA/NIOSH approved self-contained breathing apparatus, with full face mask and full protective equipment.

***** PRODUCT HEALTH HAZARD INFORMATION *****

ROUTE OF EXPOSURE

INGESTION:

Moderately Toxic. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. Exposure may cause symptoms similar to those listed under "Inhalation" (see Inhalation section).

SKIN:

Moderately Irritating. Repeated or prolonged skin contact may cause reddening, inflammation or blistering. May cause allergic reactions in some individuals. Contact with heated material may cause thermal burns. Exposure may cause symptoms similar to those listed under "Inhalation" (see Inhalation section).

EYE:

Moderately Irritating. Direct contact may cause temporary corneal lesions. Contact with heated material may cause thermal burns.

INHALATION:

SLIGHTLY TOXIC. May cause respiratory tract irritation. May cause harmful central nervous system effects. Effects may include drowsiness, impaired balance, nausea, vomiting, loss of appetite and general weakness--"Styrene Sickness". May cause blood changes and liver damage. The disagreeable odor and irritation of this material make inhalation of acutely toxic concentrations unlikely.

SPECIAL TOXIC EFFECTS:

Carcinogenic determinations: The International Agency for Research on Cancer (IARC) has classified styrene in Group 2B (possibly carcinogenic to humans). This classification is not based on any significant new evidence that styrene may be carcinogenic, but rather on a revised definition for group 2B and consideration of new data on styrene oxide. A number of lifetime animal studies with styrene including those conducted in the NCI bioassay program have not shown styrene to be carcinogenic.

Pre-existing medical conditions which may be aggravated by exposure include, but are not limited to, chronic respiratory and skin disease and central nervous system disorders.

***** EMERGENCY AND FIRST AID *****

INGESTION:

DO NOT INDUCE VOMITING BECAUSE OF DANGER OF ASPIRATING LIQUID INTO LUNGS AND/OR BURNING (IRRITATING) ESOPHAGUS AGAIN. If spontaneous vomiting occurs, monitor for breathing difficulty. Keep affected person warm and at rest. Get immediate medical attention.

SKIN CONTACT:

Wash area of contact thoroughly with soap and water. Remove contaminated clothing immediately. Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Get medical attention if irritation persists.

EYE CONTACT:

Flush immediately with large amounts of water for 20-30 minutes. Eye lids should be held away from the eyeball to insure thorough rinsing. Get medical attention if irritation persists.

INHALATION:

Remove affected person from source of exposure. If breathing is difficult, give oxygen. Keep affected person warm and at rest. Get immediate medical attention.

***** REACTIVITY DATA *****

STABILITY/INCOMPATIBILITY:

Stable under normal conditions of use. Avoid contact with strong oxidizers.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:

Thermal decomposition products may be hazardous. Reacts vigorously with oxidizing agents.

***** SPILL OR LEAK PROCEDURES *****

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

No flares, smoking, flames, sparks & other sources of ignition in hazardous area. Stop leak if you can do it without risk. Use water spray to reduce vapors.

--SMALL SPILLS--Take up with sand or other noncombustible absorbent material or other sorbent known to be compatible, then flush area with water.

--LARGE SPILLS--Dike far ahead of spill for later disposal.

WASTE DISPOSAL METHOD:

Incinerate in an approved incinerator or dispose of in a chemical dump in accordance with local, state and federal regulations.

***** PERSONAL PROTECTION INFORMATION *****

EYE PROTECTION:

Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Have eye baths readily available where eye contact can occur.

SKIN PROTECTION:

Wear impervious gloves and protective clothing to prevent skin contact. Suggested protective materials are: Polyvinyl alcohol, Polyethylene and Viton. Provide safety showers at any location where skin contact can occur.

RESPIRATORY PROTECTION:

Use NIOSH or MSHA approved equipment when airborne exposure limits are exceeded. NIOSH/MSHA approved breathing equipment may be required for non-routine and emergency use. Ventilation may be used to control or reduce airborne concentrations.

***** SPECIAL PRECAUTIONS *****

HANDLING/STORAGE:

Store in tightly closed containers in cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles.

"Empty" containers may contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

Information contained herein is presented in good faith and is based on data believed to be accurate. However, no warranty is expressed or implied regarding this information or the results obtained from the use of this Material Safety Data Sheet whether it originated with HK Research Corporation or not. This Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use with any other material or process. This information is supplied with the condition that the user will make the appropriate determination as to its suitability for their purposes prior to use. HK Research Corporation assumes no legal responsibility for use or reliance upon this information.

MATERIAL SAFETY DATA SHEET ADDENDUM

California Proposition 65 Statement

California Proposition 65 involving warnings of the presence of certain listed chemicals is now in effect.

HK Research Corporation believes the law requires us to inform you that detectable amounts of any of the listed chemicals might be present in HK Research products. Based on a review of the list, HK Research products, like all synthetic and naturally occurring chemical substances, may conceivably contain trace contaminants of some of the listed substances. While not necessarily added to HK Research Corporation products as ingredients, some of the listed chemicals may be present in the raw materials as received from suppliers over which we have no control.

In order to comply with the California Law, even though some of the listed substances may not represent a significant risk as defined by the regulations, we feel obligated to make the following statement:

"Warning: HK Research Corporation products may contain trace amounts of some chemicals considered by the State of California to be carcinogens or reproductive Toxicants."