

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS Standards, EC Directives, and the Japanese Industrial Standard JIS Z 9250: 2000

NAME USED ON LABEL: **KANEKA PVC**
SUPPLIER/MANUFACTURER'S NAME: KANEKA TEXAS CORPORATION
ADDRESS: 6161 Underwood Road
 Pasadena, Texas 77507
EMERGENCY PHONE: (800) 424-9300 or (703) 527-3887
TECHNICAL INFORMATION PHONE: (281) 291-4421
CHEMICAL NAME: Polyvinyl Chloride, PVC
CHEMICAL FAMILY NAME: Polymers, Halogens
PRODUCT NAME(S): Kaneka XEL-C, XEL-D, XEL-E; Kanevinyl K07S, K10S, K10M, K10L, K13S, K18S, K18M, K25S; Kanevinyl S400, KS1700, KS2500, KS3000
MSDS NUMBER: 03209

Section 2. COMPOSITION and INFORMATION ON INGREDIENTS

In solid form, this product would be not be classified as hazardous per the criteria of OSHA 1910.120. Heated product and fumes from the product may be hazardous. The MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and made available for employees and other uses of the product.

CHEMICAL NAME	CAS #	EINECS #	ENCS #	w/w %	EXPOSURE LIMITS IN AIR					
					ACGIH-TLV		OSHA-PEL		NIOSH IDLH ppm	OTHER ppm
					TWA ppm	STEL ppm	TWA ppm	STEL ppm		
Vinyl Chloride Monomer	75-01-4	200-831-0	2-102	<200 ppb	1	NE	1	5 (average not exceeding any 15 minutes) See 29 CFR 1910.1017	NE	NIOSH REL: See 29 CFR 1910.1017 Carcinogen: EPA-A, EPA-K, IARC-1, MAK-1, NIOSH-Ca, OSHA-Ca, TLV-A1
Polyvinyl Chloride	9002-86-2	Unlisted	Unlisted	> 99%	NE	NE	NE	NE	NE	DFG MAKs: 1.5 (respirable fraction); IARC-3
Residual Aliphatic Chlorinated Hydrocarbons				Balance	None of the other components contribute significant additional hazards at the concentrations present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, Canadian Workplace Hazardous Materials Identification System Standards (CPR 4), EC Directives or under the Japanese JIS-Z 9250.2000 Standard.					

NE = Not Established. NIC = Noticed of Intended Change. See Section 16 for Definitions of Terms Used.
 NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR, EC Directives and the Japanese Industrial Standard JIS Z 9250: 2000.

Section 3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This product is a white, odorless, powdered solid. **Health Hazards:** Inhalation of dusts or particulates from this product may be irritating to the respiratory system. There is some evidence that Polyvinyl Chloride polymers may cause sensitization by inhalation in susceptible individuals, resulting in allergic respiratory reaction. May cause eye irritation, which can be delayed by several hours. This product is not normally irritating by skin contact; however, it must be noted that Polyvinyl Chloride polymers may cause skin sensitization and allergic reaction in susceptible individuals. Ingestion of this product may be harmful. Eye or skin contact with heated material may cause burns. **Flammability Hazard:** This product may ignite if substantially heated. This product may present a hazard of an air/dust explosion. **Reactivity Hazard:** This product is not reactive.

EMERGENCY OVERVIEW (continued): Environmental Hazard:

Release of large quantities of this product to a terrestrial or aquatic environment may cause harm to contaminated plants and animals. **Emergency Considerations:** Emergency responders must wear proper personal protective equipment for the incident to which they are responding.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of occupational overexposure to this product via inhalation of dusts or fumes from the product if heated, and skin and eye contact. The symptoms of overexposure to this product, via route of entry, are as follows:

INHALATION: Inhalation of dust or particulates from this product may irritate the respiratory system. Symptoms may include coughing, and sneezing. Symptoms should be relieved upon removal to fresh air. If heated to decomposition, fumes may be irritating to the respiratory system. Symptoms may include coughing and difficulty breathing. As a Polyvinyl Chloride polymer, chronic inhalation of dusts or fumes from the product may result in sensitization of the airways and subsequent respiratory allergic reaction or lung damage. Symptoms can include difficulty breathing, wheezing, asthma and coughing. Persons who become sensitized can experience allergic reaction after only brief subsequent exposure. See Section 16 for additional information on chronic inhalation of Polyvinyl Chloride polymer dusts. See "Additional Information" below for possible requirements under OSHA.

ADDITIONAL INFORMATION: This product contains Vinyl Chloride monomer at concentrations less than 200 parts per billion (ppb). This level does not constitute a hazard in the product as sold; however, under conditions of use, including heating and poor ventilation, the Vinyl Chloride concentrations could build-up to levels which require persons using or handling the product to follow the requirements defined in the OSHA Vinyl Chloride Standard (29 CFR §1910.1017). It is the responsibility of persons using this product to determine if Vinyl Chloride presents a hazard during use and to take necessary precautions to prevent exposure to this polymer.

CONTACT WITH SKIN or EYES: Contact with the skin is not expected to cause adverse symptoms unless exposure is prolonged or in conditions where moisture is present on the skin. Repeated skin-overexposures to low concentrations can result in dermatitis (inflammation and reddening of the skin). Although there are no specific data for this polymer, there is evidence that Polyvinyl Chloride polymers can cause dermal sensitization and allergic skin reaction in susceptible individuals. Symptoms may include redness, itching and rash. Persons who become sensitized may experience allergic reaction after exposure to very small amounts of the material. Contact with the eyes may cause mild irritation, pain, reddening, and watering. Abrasion to eye tissue may occur and irritation may be delayed by several hours. Skin or eye contact with heated material can cause thermal burns.

SKIN ABSORPTION: This polymer is not known to be absorbed via intact skin.

INGESTION: Ingestion is not anticipated to be a likely route of exposure to this product. If large quantities of this product is swallowed, irritation of the mouth, throat, esophagus, and other tissues of the digestive system may occur. Symptoms may include stomach pains and vomiting.

INJECTION: Accidental injection of this product, via laceration or puncture by a contaminated object, may cause pain and irritation in addition to the wound.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Overexposure to this product may cause the following health effects:

ACUTE: Inhalation of dusts or fumes from the product may cause irritation. Contact with the eyes may cause mild to moderate irritation; symptoms may be delayed. Ingestion may cause irritation of the digestive system.

CHRONIC: Repeated skin contact may result in dermatitis. Exposure via inhalation and skin contact may result in sensitization and allergic reaction in susceptible individuals. See Section 16 (Toxicity data) for additional information.

TARGET ORGANS: ACUTE: Respiratory system, skin, eyes. CHRONIC: Skin, respiratory system.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM		
HEALTH HAZARD	(BLUE)	2
FLAMMABILITY HAZARD	(RED)	1
PHYSICAL HAZARD	(YELLOW)	0
PROTECTIVE EQUIPMENT		
SEE SECTION 8		
For Routine Industrial Use and Handling Applications		

See Section 16 for Definition of Ratings

Section 4. FIRST-AID MEASURES

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of label and MSDS to health professional with victim.

SKIN EXPOSURE: Under normal circumstances, this product is not expected to cause adverse effect by skin contact. While not expected, if adverse effect occurs after skin contact, begin decontamination with running water. Minimum flushing is for 15 minutes.

Do not interrupt flushing. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek medical attention if adverse effect occurs.

INHALATION: If dusts, particulates or fumes from heated product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

EYE EXPOSURE: If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Do not interrupt flushing.

INGESTION: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING, unless directly by medical personnel. Have victim rinse mouth with water or give several cupfuls of water, if conscious. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If vomiting occurs, lean patient forward or place on side (head-down position, if possible) to maintain an open airway and prevent aspiration.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing skin or respiratory conditions may be aggravated by exposure to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

Section 5. FIRE-FIGHTING MEASURES

FLASH POINT: Not available.

AUTOIGNITION TEMPERATURE: >450°C (842°F)

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS:

Water Spray: YES

Carbon Dioxide: YES

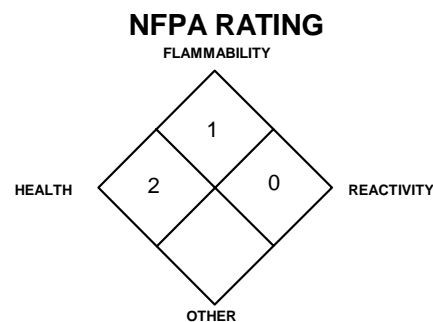
Foam: YES

Dry Chemical: YES

Halon: YES

Other: Any "ABC" Class.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product poses a slight fire hazard at elevated temperatures. This product may present a hazard of an air/dust explosion. When involved in a fire, this material may decompose and produce irritating vapors, acrid smoke, and toxic gases (e.g., carbon monoxide, carbon dioxide, and hydrogen chloride, vinyl chloride and various polymer compounds).



See Section 16 for
Definition of Ratings

Explosion Sensitivity to Mechanical Impact: Not sensitive

Explosion Sensitivity to Static Discharge: Dust of this product may be ignited by static discharge. All equipment used when handling this product must be grounded.

SPECIAL FIRE-FIGHTING PROCEDURES: Avoid scattering burning material. Fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move fire-exposed containers if it can be done without risk to firefighters. If possible, firefighters should control run-off water to prevent environmental contamination. Rinse contaminated equipment with soapy water before returning such equipment to service.

Section 6. ACCIDENTAL RELEASE MEASURES

SPILL RESPONSE PROCEDURES: Small releases can be swept-up or cleaned-up using a damp sponge. Responders should wear appropriate goggles, and suitable body protection during the clean-up operations to avoid inhalation of dusts and dust contamination of the eyes. Dispose of spilled product appropriately. No other response is normally necessary for clean-up.

Spills of this product are not hazardous unless other chemicals are involved. In the event of involvement with other chemicals, releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Self-Contained Breathing Apparatus must be selected if releases occur in confined or poorly-ventilated areas, or in situations in which the level of oxygen is below 19.5%. Sweep-up or vacuum spilled solid (an explosion-proof vacuum should be used). Rinse area with soap and water solution, followed by a water rinse. Close-off sewers and take other measures to protect human health and the environment, as necessary. Decontaminate the area thoroughly. Place all spill residue in appropriate container which is properly labeled. Seal the container immediately and dispose of in accordance with U.S. Federal, State and local regulations and those of Canada and its provinces and those of EC Member States and Japan (see Section 13, Disposal Considerations).

Section 7. HANDLING and USE

WORK AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing dusts generated of this product. Use in a well-ventilated location. Wipe-down area routinely to avoid the accumulation of dusts.

STORAGE AND HANDLING PRACTICES: Use non-sparking, grounded equipment. Systems must be designed to safely handle and convey a material capable of causing a dust explosion. Due to the possible presence of Vinyl Chloride in this product, refer 29 CFR 1910.1017 (the Vinyl Chloride Standard) and ensure that any necessary requirements are met. All employees who handle this material should be trained to handle it safely. Bags of this product must be properly labeled. Store product in a cool, dry location, away from direct sunlight, or sources of intense heat. Store away from incompatible materials (see Section 10, Stability and Reactivity). Keep bags tightly closed when not in use. Inspect all incoming bags before storage to ensure containers are properly labeled and not damaged.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely.

Section 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS FOR COMPONENTS: Please refer to exposure limits given in Section 2 (Composition and Information On Ingredients).

VENTILATION AND ENGINEERING CONTROLS: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Splash goggles or safety glasses may be worn if operations can generate dusts. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

HAND PROTECTION: Wear appropriate chemical resistant gloves. If necessary, refer to U.S. OSHA 29 CFR 1910.138 appropriate Standards of Canada, the European Economic Community and applicable Standards of Japan.

BODY PROTECTION: Wear appropriate chemical resistant clothing. (e.g., Tyvek suit, rubber apron). If necessary, refer to appropriate Standards of Canada, the European Economic Community or Japan.

RESPIRATORY PROTECTION: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/Any appropriate escape-type, self-contained breathing apparatus

Section 9. PHYSICAL and CHEMICAL PROPERTIES

VAPOR DENSITY (water = 1): Not applicable.

BOILING POINT: Not applicable.

SPECIFIC GRAVITY: +/-1.4 g/cm³

SOLUBILITY IN WATER: Insoluble.

EVAPORATION RATE (n-BuAc = 1): Not applicable.

ODOR THRESHOLD: Not applicable.

PERCENT VOLATILES: Not available.

LOG COEFFICIENT WATER/OIL DISTRIBUTION: Not determined.

APPEARANCE, ODOR AND COLOR: This product is a white, odorless, powdered solid.

HOW TO DETECT THIS SUBSTANCE (warning properties): The appearance is a good warning property for this material in event of an accidental release.

SPECIFIC VOLUME: Not applicable.

MELTING POINT: Not available.

pH: Not applicable.

MOLECULAR WEIGHT: Not available.

EXPANSION RATIO Not applicable.

VAPOR PRESSURE: Not applicable.

Section 10. STABILITY and REACTIVITY

STABILITY: Stable under conditions of normal temperature and pressure.

DECOMPOSITION PRODUCTS: Thermal decomposition products include carbon monoxide, carbon dioxide, and hydrogen chloride, vinyl chloride and various polymer compounds.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizing agents.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers. Avoid contact with incompatible materials.

Section 11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Currently, there are no LD₅₀ or LC₅₀ toxicological data for this polymer.

GENERAL TOXICITY INFORMATION: An epidemiological survey of workers involved in manufacture of chlorinated derivatives of polyvinyl chloride, showed the frequency of ischaemic heart disease, intermittent lameness and stroke are higher than in workers not exposed to these compounds. Chronic inhalation exposure to Polyvinyl Chloride dust may cause dyspnea, decrease in pulmonary function, occupational asthma with cough and breathlessness, interstitial pneumonitis, pneumoconiosis with diffuse fibrosis, granulomatous tissue and secondary polyglobulia. Animal studies have reported bronchiolitis, alveolitis, random lung lesions, pathomorphological degenerative and hyperplastic inflammatory changes in the liver.

SUSPECTED CANCER AGENT: This polymer is not found on the following lists: U.S. FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA and therefore are neither considered to be nor suspected to be cancer causing agents by these agencies. It must be noted that the product contains trace amounts of Vinyl Chloride which is listed as follows:

Vinyl Chloride: ACGIH TLV-A1 (Confirmed Human Carcinogen); EPA-A (Human Carcinogen); EPA-K (Known Human Carcinogen); IARC-1 (Carcinogenic to Humans); MAK-1 (Substances the Cause Cancer in Man and Can Be Assumed to Make a Significant Contribution of Cancer Risk); NIOSH-Ca (Potential Occupational Carcinogen with No Further Categorization); NTP-K (Known to be a Human Carcinogen); OSHA-Ca (Carcinogen Defined with No Further Categorization).

IRRITANCY OF PRODUCT: Inhalation of dusts or fumes from heated product may cause respiratory irritation. In the presence of moisture or if contact is prolonged, skin contact may cause irritation. Eye contact can cause irritation, with the possibility of delayed symptoms.

SENSITIZATION TO THE PRODUCT: Exposure via inhalation and skin contact may result in sensitization and allergic reaction in susceptible individuals.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product on the human reproductive system.

Mutagenicity: This product is not expected to cause mutagenic effects in humans.

Embryotoxicity: This product is not expected to cause embryotoxic effects in humans.

Teratogenicity: This product is not expected to cause teratogenic effects in humans.

Reproductive Toxicity: This product is not expected to cause adverse reproductive effects in humans. Animal studies indicate an increase in fetal mortality with no malformation in rats exposed via inhalation to polyvinyl chloride during pregnancy.

A *mutagen* is a chemical that causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An *embryotoxin* is a chemical that causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A *teratogen* is a chemical that causes damage to a developing fetus, but the damage does not propagate across generational lines. A *reproductive toxin* is any substance that interferes in any way with the reproductive process.

ACGIH BIOLOGICAL EXPOSURE INDICES: There are no ACGIH Biological Exposure Indices (BEIs) determined for this material.

Section 12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: No data currently, available. This product is not expected to bio-degrade significantly in the environment.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: No data currently available. This product may be harmful to contaminated plant and animal life (especially if large quantities are released).

EFFECT OF CHEMICAL ON AQUATIC LIFE: No data currently available. This product may be harmful to contaminated aquatic plant and animal life (especially if large quantities are released).

Section 13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: As supplied, this product does not meet the definition of a hazardous waste. Recover, reclaim or recycle the product, as appropriate. May be disposed of as a solid waste, sealed in an appropriate container.

If mixed with other chemicals, it the person using the product must determine if the waste mixture meets the definition of any hazard class and dispose of in accordance with appropriate U.S. Federal, State, and local regulations, or the applicable standards of Canada and its Provinces, those of EC Member States and of Japan.

U.S. EPA WASTE NUMBER: Not applicable.

Section 14. TRANSPORTATION INFORMATION

THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Not Regulated
HAZARD CLASS NUMBER and DESCRIPTION: Not Applicable
UN IDENTIFICATION NUMBER: Not Applicable
PACKING GROUP: Not Applicable
DOT LABEL(S) REQUIRED: Not Applicable
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): Not Applicable
MARINE POLLUTANT: This material is not classified by the DOT as a Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is not considered as hazardous goods, per the regulations of Transport Canada. The polymer is not designated by the TDG to be a Marine Pollutant.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA) DESIGNATION: This product is not considered as dangerous goods, per rules of IATA.

INTERNATIONAL MARITIME ORGANIZATION (IMO): This product is not considered as dangerous goods, per rules of the IMO. The polymer is not designated by the IMO to be a Marine Pollutant.

JAPAN SHIP SAFETY LAW, PORT REGULATION LAW: This product is not regulated according to Japan Ship Safety Law.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): This product is not considered by the United Nations Economic Commission for Europe to be dangerous goods.

Section 15. REGULATORY INFORMATION

ADDITIONAL UNITED STATES REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: This polymer is not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act; **however, the Vinyl Chloride component is on Sara 313.**

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this polymer. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): **The Vinyl Chloride component has a RQ of 1 lb (0.454 kg).**

U.S. TSCA INVENTORY STATUS: This compound is listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable for product. Under the Clean Air Act (CAA 112[r]) **the trace Vinyl Chloride component has a Threshold Quantity of 10,000 lb (4540 kg).**

U.S. STATE REGULATORY INFORMATION: This polymer is not covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: No.	Massachusetts - Substance List: No.	North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.
California - Permissible Exposure Limits for Chemical Contaminants: No.	Michigan - Critical Materials Register: No.	Pennsylvania - Hazardous Substance List: No.
Florida - Substance List: No.	Minnesota - List of Hazardous Substances: No.	Rhode Island - Hazardous Substance List: No.
Illinois - Toxic Substance List: No.	Missouri - Employer Information/Toxic Substance List: No.	Texas - Hazardous Substance List: No.
Kansas - Section 302/313 List: No.	New Jersey - Right to Know Hazardous Substance List: No.	West Virginia - Hazardous Substance List: No.
		Wisconsin - Toxic and Hazardous Substances: No.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): This polymer is not on the California Proposition 65 lists; however, **the Vinyl Chloride component is on the Prop 65 lists.** WARNING! This product contains (Vinyl Chloride) known to the State of California to cause cancer. The No Significant Risk Level for Vinyl Chloride under Prop 65 legislature is 3 .mu.g/day.

ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDL INVENTORY STATUS: This compound is on the Canadian DSL Inventory.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITY SUBSTANCES LISTS: This polymer is not on the CEPA Priority Substances Lists.

ADDITIONAL EUROPEAN COMMUNITY INFORMATION:

EC LABELING AND CLASSIFICATION:

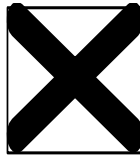
An official classification for this product has not been published in EC Commission Directives. The following is a self-classification based on hazardous properties of the product. This product meets the following definition, per the European Community Council Directives.

EC CLASSIFICATION: Xn (Harmful)

EC RISK PHRASES: [R: 42, 43]: May cause sensitization by inhalation and skin contact.

EC SAFETY PHRASES: Keep locked up and out of the reach of children.* **This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only.* Keep container tightly closed and in a well ventilated place. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show label where possible). [S:(1/2)*, 7/9, 26, 36/37/39, 45]

EUROPEAN COMMUNITY ANNEX II HAZARD SYMBOLS:



ADDITIONAL JAPANESE REGULATIONS:

JAPANESE ENCS INVENTORY: This polymer is on the ENCS Inventory. ENC # 2-102

POISONOUS AND DELETERIOUS SUBSTANCES CONTROL LAW: This polymer is not listed under the Specified Poisonous Substance under the Poisonous and Deleterious Substances Control Law.

Section 16. OTHER INFORMATION

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Kaneka Texas Corporation's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these, which are commonly used, include the following:

CAS #: This is the Chemical Abstract Service Number that uniquely identifies each constituent.

EXPOSURE LIMITS IN AIR:

CEILING LEVEL: The concentration that shall not be exceeded during any part of the working exposure.

LOQ: Limit of Quantitation.

MAK: Federal Republic of Germany Maximum Concentration Values in the workplace.

NE: Not Established. When no exposure guidelines are established, an entry of NE is made for reference.

NIC: Notice of Intended Change.

NIOSH CEILING: The exposure that shall not be exceeded during any part of the workday. If instantaneous monitoring is not feasible, the ceiling shall be assumed as a 15-minute TWA exposure (unless otherwise specified) that shall not be exceeded at any time during a workday.

NIOSH RELs: NIOSH's Recommended Exposure Limits.

EXPOSURE LIMITS IN AIR (continued):

PEL-Permissible Exposure Limit: OSHA's Permissible Exposure Limits. This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (*Federal Register*: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL that was vacated by Court Order.

SKIN: Used when there is a danger of cutaneous absorption.

STEL-Short Term Exposure Limit: Short Term Exposure Limit, usually a 15-minute time-weighted average (TWA) exposure that should not be exceeded at any time during a workday, even if the 8-hr TWA is within the TLV-TWA, PEL-TWA or REL-TWA.

TLV-Threshold Limit Value: An airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour.

TWA-Time Weighted Average: Time Weighted Average exposure concentration for a conventional 8-hr (TLV, PEL) or up to a 10-hr (REL) workday and a 40-hr workweek.

(continued on following page)

DEFINITIONS OF TERMS (Continued)

EXPOSURE LIMITS IN AIR (continued):

IDLH-Immediately Dangerous to Life and Health: This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM

HAZARD RATINGS: This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards.

HEALTH HAZARD:

0 (Minimal Hazard): No significant health risk, irritation of skin or eyes not anticipated. *Skin Irritation:* Essentially non-irritating. PII or Draize = "0". *Eye Irritation:* Essentially non-irritating, or minimal effects which clear in < 24 hours [e.g. mechanical irritation]. Draize = "0". *Oral Toxicity LD₅₀ Rat:* < 5000 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* < 2000 mg/kg. *Inhalation Toxicity 4-hrs LC₅₀ Rat:* < 20 mg/L.; **1 (Slight Hazard):** Minor reversible injury may occur; slightly or mildly irritating. *Skin Irritation:* Slightly or mildly irritating. *Eye Irritation:* Slightly or mildly irritating. *Oral Toxicity LD₅₀ Rat:* > 500-5000 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* > 1000-2000 mg/kg. *Inhalation Toxicity LC₅₀ 4-hrs Rat:* > 2-20 mg/L.; **2 (Moderate Hazard):** Temporary or transitory injury may occur. *Skin Irritation:* Moderately irritating; primarily irritant; sensitizer. PII or Draize > 0, < 5. *Eye Irritation:* Moderately to severely irritating and/or corrosive; reversible corneal opacity; corneal involvement or irritation clearing in 8-21 days. Draize > 0, ≤ 25. *Oral Toxicity LD₅₀ Rat:* > 50-500 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* > 200-1000 mg/kg. *Inhalation Toxicity LC₅₀ 4-hrs Rat:* > 0.5-2 mg/L.; **3 (Serious Hazard):** Major injury likely unless prompt action is taken and medical treatment is given; high level of toxicity; corrosive. *Skin Irritation:* Severely irritating and/or corrosive; may destroy dermal tissue, cause skin burns, dermal necrosis. PII or Draize > 5-8 with destruction of tissue. *Eye Irritation:* Corrosive, irreversible destruction of ocular tissue; corneal involvement or irritation persisting for more than 21 days. Draize > 80 with effects irreversible in 21 days. *Oral Toxicity LD₅₀ Rat:* > 1-50 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* > 20-200 mg/kg. *Inhalation Toxicity LC₅₀ 4-hrs Rat:* > 0.05-0.5 mg/L.; **4 (Severe Hazard):** Life-threatening; major or permanent damage may result from single or repeated exposure. *Skin Irritation:* Not appropriate. Do not rate as a "4", based on skin irritation alone. *Eye Irritation:* Not appropriate. Do not rate as a "4", based on eye irritation alone. *Oral Toxicity LD₅₀ Rat:* ≤ 1 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* ≤ 20 mg/kg. *Inhalation Toxicity LC₅₀ 4-hrs Rat:* ≤ 0.05 mg/L).

FLAMMABILITY HAZARD:

0 (Minimal Hazard-Materials that will not burn in air when exposure to a temperature of 815.5°C [1500°F] for a period of 5 minutes.); 1 (Slight Hazard-Materials that must be pre-heated before ignition can occur. Material require considerable pre-heating, under all ambient temperature conditions before ignition and combustion can occur, including: Materials that will burn in air when exposed to a temperature of 815.5°C (1500°F) for a period of 5 minutes or less; Liquids, solids and semisolids having a flash point at or above 93.3°C [200°F] (e.g. OSHA Class IIIB, or; Most ordinary combustible materials [e.g. wood, paper, etc.]; 2 (Moderate Hazard-Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not, under normal conditions, form hazardous atmospheres in air, but under high ambient temperatures or moderate heating may release vapor in sufficient quantities to produce hazardous atmospheres in air, including: Liquids having a flash-point at or above 37.8°C [100°F]; Solid materials in the form of course dusts that may burn rapidly but that generally do not form explosive atmospheres; Solid materials in a fibrous or shredded form that may burn rapidly and create flash fire hazards (e.g. cotton, sisal, hemp; Solids and semisolids that readily give off flammable vapors.); 3 (Serious Hazard- Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures, or, unaffected by ambient temperature, are readily ignited under almost all conditions, including: Liquids having a flash point below 22.8°C [73°F] and having a boiling point at or above 38°C [100°F] and below 37.8°C [100°F] [e.g. OSHA Class IB and IC];

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):**HEALTH HAZARD (continued):**

3 (continued): Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and are readily dispersed in air [e.g., dusts of combustible solids, mists or droplets of flammable liquids]; Materials that burn extremely rapidly, usually by reason of self-contained oxygen [e.g. dry nitrocellulose and many organic peroxides]; **4 (Severe Hazard-Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air, and which will burn readily, including: Flammable gases; Flammable cryogenic materials; Any liquid or gaseous material that is liquid while under pressure and has a flash point below 22.8°C [73°F] and a boiling point below 37.8°C [100°F] [e.g. OSHA Class IA; Material that ignite spontaneously when exposed to air at a temperature of 54.4°C [130°F] or below [e.g. pyrophoric].**

PHYSICAL HAZARD:

0 (Water Reactivity): Materials that do not react with water. *Organic Peroxides:* Materials that are normally stable, even under fire conditions and will not react with water. *Explosives:* Substances that are Non-Explosive. Unstable *Compressed Gases:* No Rating. *Pyrophorics:* No Rating. *Oxidizers:* No "0" rating allowed. *Unstable Reactives:* Substances that will not polymerize, decompose, condense or self-react.; **1 (Water Reactivity):** Materials that change or decompose upon exposure to moisture. *Organic Peroxides:* Materials that are normally stable, but can become unstable at high temperatures and pressures. These materials may react with water, but will not release energy. *Explosives:* Division 1.5 & 1.6 substances that are very insensitive explosives or that do not have a mass explosion hazard. *Compressed Gases:* Pressure below OSHA definition. *Pyrophorics:* No Rating. *Oxidizers:* Packaging Group III; *Solids:* any material that in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Group I and II are not met. *Liquids:* any material that exhibits a mean pressure rise time less than or equal to the pressure rise time of a 1:1 nitric acid (65%)/cellulose mixture and the criteria for Packing Group I and II are not met. *Unstable Reactives:* Substances that may decompose, condense or self-react, but only under conditions of high temperature and/or pressure and have little or no potential to cause significant heat generation or explosive hazard. Substances that readily undergo hazardous polymerization in the absence of inhibitors.; **2 (Water Reactivity):** Materials that may react violently with water. *Organic Peroxides:* Materials that, in themselves, are normally unstable and will readily undergo violent chemical change, but will not detonate. These materials may also react violently with water. *Explosives:* Division 1.4 – Explosive substances where the explosive effect are largely confined to the package and no projection of fragments of appreciable size or range are expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package. *Compressed Gases:* Pressurized and meet OSHA definition but < 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics:* No Rating. *Oxidizers:* Packaging Group II *Solids:* any material that, either in concentration tested, exhibits a mean burning time of less than or equal to the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met. *Liquids:* any material that exhibits a mean pressure rise time less than or equal to the pressure rise of a 1:1 aqueous sodium chlorate solution (40%)/cellulose mixture and the criteria for Packing Group I are not met. *Unstable Reactives:* Substances that may polymerize, decompose, condense, or self-react at ambient temperature and/or pressure, but have a low potential for significant heat generation or explosion. Substances that readily form peroxides upon exposure to air or oxygen at room temperature); (continued on next page)

DEFINITIONS OF TERMS (Continued)

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

PHYSICAL HAZARD (continued):

3 (Water Reactivity): Materials that may form explosive reactions with water. **Organic Peroxides:** Materials that are capable of detonation or explosive reaction, but require a strong initiating source, or must be heated under confinement before initiation; or materials that react explosively with water. **Explosives:** Division 1.2 – Explosive substances that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but do not have a mass explosion hazard. **Compressed Gases:** Pressure \geq 514.7 psi absolute at 21.1°C (70°F) [500 psig]. **Pyrophorics:** No Rating. **Oxidizers:** Packing Group I **Solids:** any material that, in either concentration tested, exhibits a mean burning time less than the mean burning time of a 3:2 potassium bromate/cellulose mixture. **Liquids:** Any material that spontaneously ignites when mixed with cellulose in a 1:1 ratio, or which exhibits a mean pressure rise time less than the pressure rise time of a 1:1 perchloric acid (50%)/cellulose mixture. **Unstable Reactives:** Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a moderate potential to cause significant heat generation or explosion.; **4 (Water Reactivity):** Materials that react explosively with water without requiring heat or confinement. **Organic Peroxides:** Materials that are readily capable of detonation or explosive decomposition at normal temperature and pressures. **Explosives:** Division 1.1 & 1.2-explosive substances that have a mass explosion hazard or have a projection hazard. A mass explosion is one that affects almost the entire load instantaneously. **Compressed Gases:** No Rating. **Pyrophorics:** Add to the definition of Flammability “4”. **Oxidizers:** No “4” rating. **Unstable Reactives:** Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a high potential to cause significant heat generation or explosion.). PPE Rating B: Hand and eye protection is required for routine chemical use. PPE Rating C: Hand, eye, and body protection may be required for routine chemical use.

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS:

HEALTH HAZARD: 0 (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury).

FLAMMABILITY HAZARD AND REACTIVITY HAZARD: Refer to definitions for “Hazardous Materials Identification System”.

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). **Flash Point** - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. **Autoignition Temperature:** The minimum temperature required to initiate combustion in air with no other source of ignition. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Human and Animal Toxicology: Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD₅₀** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC₅₀** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m³** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects.

Cancer Information: The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information:** **BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

ECOLOGICAL INFORMATION:

EC is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. **TL_m** = median threshold limit; Coefficient of Oil/Water Distribution is represented by **log K_{ow}** or **log K_{oc}** and is used to assess a substance’s behavior in the environment.

REGULATORY INFORMATION:

U.S. and CANADA:

ACGIH: American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act (**SARA**); the Canadian Domestic/Non-Domestic Substances List (**DSL/NDSL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA** or **Superfund**); and various state regulations. This section also includes information on the precautionary warnings which appear on the material’s package label. **OSHA** - U.S. Occupational Safety and Health Administration.

EUROPEAN and INTERNATIONAL:

The DFG: This is the Federal Republic of Germany’s Occupation Health Agency, similar to the U.S. OSHA. **EC** is the European Community (formerly known as the **EEC**, European Economic Community). **EINECS:** This is the European Inventory of Now-Existing Chemical Substances. The **ARD** is the European Agreement Concerning the International Carriage of Dangerous Goods by Road and the **RID** are the International Regulations Concerning the Carriage of Dangerous Goods by Rail. **AICS** is the Australian Inventory of Chemical Substances. **MITI** is the Japanese Minister of International Trade and Industry