Safety Data Sheet (SDS)

Product Name: KEPITAL TE--21

Revision Date: December 14, 2017 (Re. 11.0) **This Safety Data Sheet is according to Regulation EC No. 1907/2006**

1. Identification of the substance/mixture and of the company/undertaking product identifier

1.1. Product identifier:

KEPITAL TE-22 (LOF / LOF2)

1.2. Product Description: : Polyoxymethylene, Acetal copolymer

1.3. Relevant identified uses of the substance or mixture and uses advised against: : Plastic industry(Extrusion, Injection)

1.4. Details of the supplier of the safety data sheet

· Company Identification:
KOREA ENGINEERING PLASTICS CO.,LTD
14th FLOOR, OCI BLDG., 94, SOGONG-RO, JUNG-GU, SEOUL, KOREA
Tel) 82-2-728-7462~6, Site) www.kepital.com

· Manufacturer Identification:
KOREA ENGINEERING PLASTICS CO.,LTD - Ulsan Plant
84, GOREA-RO, JANGSAENGPO, NAM-GU, ULSAN, 44781, KOREA
Tel) 82-52-279-7830~6

· Emergency telephone number:
KEP Europe GmbH Rheingaustrasse 190-196 65203 Wiesbaden, Germany
Tel) +49(0)611-962-7383

KEP America: Tel) 1-888-537-4825

2. Hazards Identification

2.1. Classification of the substance or mixture

· Classification in accordance with Regulation (EC) No 1272/2008

- Not a hazardous substance or mixture

2.2. Label elements & Statements of hazard

· Classification in accordance with Regulation (EC) No 1272/2008, Directive 67/548/EEC

- Not required label

2.3. Other hazards

· NFPA(SCALE 0-4) : Health =1, Flammability =1, Physical Hazard=0

(Note: These ratings are determined by Korea Engineering Plastics Co., Ltd.)

3. Composition, Information on Ingredients

Ingredient	CAS number	Content (%)
Base Resin (1,3,5-Trioxane, polymer with 1,3-dioxolane)	24969-26-4	≥ 94
Elastomer	-	≤ 5
Additives	-	≤ 1

<Remarks>

This is a polymeric material and may contain proprietary ingredients. And hazardous constituents are wetted by the polymer system, and therefore, present no likelihood of exposure under normal conditions of processing and handling. This product is considered hazardous under OSHA Regulations, if overheated, of formaldehyde, an OSHA regulated material.

4. First Aid Measures

4.1. Description of first aid measures

· Inhalation	- Pellets are not likely to be inhaled due to physical form. - When gas and fumes from molten plastics is inhaled, remove to fresh air. Seek medical attention immediately if breathing difficulties occur.
· Skin contact	- Cool rapidly with cold water if molten polymer contacts. If polymer is stuck to skin, please do not remove and seek medical attention immediately. - Allow adhered polymer to come off naturally. Removal of adhered polymer artificially may result in more tissue damage than if polymer is allowed to come off over them.
· Eye contact	- Flush eyes with plenty of water Immediately. Seek medical attention if discomfort persists.
· Ingestion	- If swallowed, do induce vomiting and seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

· No significant reaction of the human body to the product known

4.3. Indication of any immediate medical attention and special treatment needed

· This product is essentially inert and nontoxic. However if it is overheated or burns, gases such as carbon monoxide and formaldehyde may be released. Those exposed to off-gases may need to have their arterial blood gases and carboxy hemoglobin levels checked.

· If the carboxy hemoglobin levels are normal and the exposure occurred in an enclosed space, asphyxia (carbon dioxide replacing oxygen) is a possibility. Formaldehyde is a respiratory irritant gas.

· If patients may have inhaled high concentrations of irritating fumes they should be monitored for delayed onset pulmonary edema

5. Fire Fighting Measures

5.1. Suitable extinguishing media

· Carbon dioxide, Dry Chemical, Foam or Water spray. Dry powder, Solid extinguishing agent

5.2. Special hazards arising from the substance or mixture

· Hazardous products of combustion: Carbon monoxide and Carbon dioxide, Formaldehyde vapors

· Hazardous of fire, explosion :

- Overheating may result in release of formaldehyde, which may irritate the eyes, skin and respiratory tract.
- Base resin dust/powder has a US Bureau of Mines relative dust explosion hazard rating of severe

5.3. Advice for fire-fighters

· Firefighters should wear self-contained breathing apparatus and full fire-fighting turn-out gear. (bunker gear)

· Keep personnel removed from and unwind of fire. Water should be used to keep fire-exposed containers cool.

· Product burns with a very hot, but very faint blue flame. Water, foam and dry chemical may cause damage to electrical equipment.

6. Accidental release measures

6.1. Personal precautions, protective equipment

· High risk of slipping due to leakage/spillage of product.

· In case of spill or leak, sweep or gather up spills and place in proper container for recovery or disposal.

· Keep unnecessary people away, isolate hazard area and deny entry.

· Information regarding personal protection can be found in section 8.

6.2. Environmental precautions

· No special environmental precautions necessary.

6.3. Methods and material for containment and cleaning up

· Move to the approved place based on the disposal regulation.

7. Handling and Storage

7.1. Precautions for safe handling

· Do not handle hot or molten material without appropriate protective equipment. Maintain good housekeeping in work areas.

· Do not exceed recommended process temperature to minimize release of decomposition products.

· Do not smoke in areas where polymer dust is present.

· Appropriate measures should be taken to control the generation and accumulation of dust during conveying and processing operations.

7.2. Conditions for safe storage, including any incompatibilities

· Store in well-ventilated area away from heat and sunlight. Keep container closed to prevent contamination.

8. Exposure Controls, Personal Protection

8.1. Exposure controls

· Local Exhaust (Local ventilation system)	:	Recommended when appropriate to control employee exposure to dust or process vapors.
· General	:	May not be adequate as the sole means to control employee exposure.

8.2. Protective Equipment

· Eyes	:	Safety eyewear recommended
· Skin	:	When thermal or melt processing, wear long pants, long sleeves, well insulated gloves and face shield when there is a chance of contact.
· Inhalation	:	A NIOSH approved respirator is recommended if there is a possibility of dust generation above permissible exposure limits or that decomposition vapors may be generated.

8.3. Control parameter

· Operations involving grinding and machining of parts should be reviewed to assure that particulate levels are kept below recommended standard. Formaldehyde is a hazardous degradation product.

Ingredient	Agency		Value
Formaldehyde	OSHA	PEL	TWA - 0.75 ppm, ; STEL - 2ppm
	ACGIH	TLV	Ceiling - 0.3ppm
Nuisance dust (Nuisance Particulates)	OSHA	PEL	15 mg/m^3 (Total), 5 mg/m^3 (Respirable)
	ACGIH	TLV	10 mg/m^3 (Total), 3 mg/m^3 (Respirable)

9. Physical and Chemical Properties

· Physical Form	:	Solid / Pellets
· Odor	:	Slight, specific
· Odor threshold	:	No data available
· pH Value	:	Not applicable
· Melting Point	:	165 deg C (329 deg F)
· Boiling Point and Range	:	Not applicable (Solid)
· Flash Point (gas or volatile liquid)	:	Not applicable.
· Evaporation rate	:	Not applicable
· Inflammability	:	No data available
· Explosion range	:	No data available
· Vapor Pressure	:	No data available
· Water Solubility	:	No data available
· Relative vapor density	:	Not applicable
· Specific gravity	:	1.27 - 1.40
· Partitioning coefficient n-octanol / water (log Kow)	:	No data available
· Ignition temperature	:	320 deg C (608 deg F)

· Decomposition temperature	:	> 240 ℃
· Viscosity	:	Refer to the grade data sheet
· Molecular weight	:	Not applicable

10. Stability and Reactivity

· Reactivity	:	Stable under normal conditions of use.
· Chemical Stability	:	Stable under normal conditions of use and storage.
· Condition to Avoid	:	Maintain polymer melt temperature below 230 deg C (446 deg F). Avoid prolonged exposure at or above the recommended processing temperature.
· Incompatibility with Other Material	:	Strong acids, base (decomposes forming formaldehyde) and oxidizing materials.
· Decomposition	:	Decomposition of this material depends on the length of time exposed to elevated temperatures and may be accelerated by contaminants, pigments and other additives.
· Hazardous Decomposition Products	:	Carbon mono oxide, formaldehyde etc.
· Hazardous Polymerization	:	Will not occur

11. Toxicological Information

· Information on toxicological effects	:	No specific information available on the product

12. Ecological Information

· Toxicity	:	No specific information available on the product
· Persistence and degradability	:	No specific information available on the product. Product is insoluble in water.
· Bio accumulative potential	:	This material is considered to be non-biodegradable.
· Mobility in soil	:	No specific information available on the product
· Results of PBT and vPvB assessment	:	The product does not fulfill the criteria for PBT or vPvB.

13. Disposal Considerations

13.1. Waste treatment methods

· Check for possible recycling and dispose in accordance with all applicable regulations. (state, local)

· This product is not RCRA hazardous waste under present EPA regulations.

14. Transport Information

· UN No	:	Not classified as a dangerous good under transport regulations. (UN RTDG)
· Land transport (ADR/RID)	:	Nat classified
· Shipping information (IMDG)	:	Not classified
· Air transport (IATA/ICAO)	:	Not classified

15. Regulatory Information

15.1. Safety, health and environmental regulation/legislation specific for the substance or mixture

15.1.1. U.S. Regulations

· TSCA : All the ingredients are listed in the TSCA Inventory or are compliant with the TSCA polymer exemption rule.

· SARA	:	This product does not contain any toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40 CFR 372
· California Prop 65	:	This product contains a cause cancer chemicals listed on California Proposition 65.

15.1.2. EU regulation

· Labeling According to EEC Directives	:	Not subject to labeling
· WEEE (EU Directive 2002/96/EC)	:	Not applicable
· RoHS (EU Directive 2011/65/EC)	:	Not applicable
· PentaBDE&OctaBDE (EU Directive 2003/11/EC)	:	Not applicable

16. Other Information

· Hazardous Substances Data Bank (HSDB)

· UN RTDG (Recommendations on the Transport of Dangerous Good) Rev.17

· International Uniform Chemical Information Database (IUCLID)

· OSHA (Occupational Safety and Health Standards) 23 CFR 1910.1200

· Revision: 11.0 (December 14, 2017)

* Disclaimer:

This product is not intended for use in medical applications involving permanent implantation in the human body and users should meet all safety and health standards. The information contained herein is based on the present state of our knowledge and experience. We don’t suggest or guarantee that any hazards listed herein are the only ones that exist. Korea Engineering Plastics Co., Ltd. makes no warranty of any kind concerning the safe use of this material in your process or in combination with other substances. And the data do not describe the product's properties (product specification). Effects can be aggravated by other materials and this material may aggravate the effects of other materials. Users have the sole responsibility to determine the suitability of the materials of any use and the manner of use contemplated.

- The end of SDS -