

Material Safety Data Sheet (MSDS)

Product Name : KEPITAL F10-XX+, F15-XX+, F20-XX+, F25-XX+, F30-XX+, F40-XX+, FV-XX+, TX-XX+

Revision Date : Jul 17, 2012 (Re. 12)

This Safety Data Sheet is according to Regulation EC No. 1907/2006

1. Chemical Product and Company Identification

Product Name: KEPITAL F10-XX+, F15-XX+, F20-XX+, F25-XX+, F30-XX+, F40-XX+, FV-XX+, TX-XX+

“XX” : may be replaced with two digits(01,02,03,11,20,21,30,31,33,34,40,52,63, etc)

“+” : may be attached to alphabets (A, F, H, HK, L, M, N, O, S, T, LOF, etc)

Product Description: Polyoxymethylene Copolymer, Acetal copolymer

Product Usage (Restriction) Extrusion, Injection (Except usage)

Company Identification KOREA ENGINEERING PLASTICS Co., Ltd.
450, KONGDUCK-DONG, MAPO-GU, SEOUL, KOREA
Tel) 82-2-707-6831~9 www.kepital.com

Manufacturer Identification KOREA ENGINEERING PLASTICS Co., Ltd. Ulsan plant
84, GOREA-RO, JANGSAENGPO, NAM-GU, ULSAN 680-050, KOREA
Tel) 82-52-279-7830~4 www.kepital.com

2. Hazards Identification

Classification of the substance or mixture

No need for classification according to GHS criteria for this product.

Label elements & Statements of hazard

The product does not require a hazard warning label in accordance with EC Directives.

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

Composition:	INGREDIENT	CAS NUMBER	Content(%)
	Base Resin	24969-26-4	> 97
	Other Additives	-	< 3
	Formaldehyde	50-00-0	< 0.1

This is a polymeric material. 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 due to the release, if overheated, of formaldehyde, an OSHA regulated material.

4. First Aid Measures

Inhalation

Pellets is 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 if breathing difficulties occur.

Skin Contact

If hot and molten polymer or hot vapors contact skin, cool rapidly with cold water. If polymer is stuck to skin, do not remove, and seek medical attention. And allow adhered polymer to come off naturally. Removal of adhered polymer may result in

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more tissue damage than if polymer is allowed to come off over them.

Eye Contact Immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention if discomfort persists.

Ingestion If a significant quantity has been swallowed, give two glasses of water to dilute. Seek medical attention.

Most important symptoms and effects, both acute and delayed

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

Note to Physicians

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 carboxyhemoglobin levels checked. If the carboxyhemoglobin 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**Suitable extinguishing media**

Carbon dioxide, Dry Chemical, Foam or Water spray.

Special hazards arising from the substance or mixture

Hazardous Product 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.

Firefighting Instructions

Firefighters should wear self-contained breathing apparatus and full fire-fighting turn-out gear (bunker gear). Keep personnel removed from and upwind 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**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.

Environmental precautions

No special environmental precautions necessary.

Methods and material for containment and cleaning up

Move to the approved place based on the disposal regulation.

7. Handling and Storage**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.

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Storage

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

8. Exposure Controls, Personal Protection**Engineering Controls****Local Exhaust** : 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.**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.

Exposure Guidelines

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

Ingredient	Agency	Value
Formaldehyde	PEL (OSHA)	TWA - 0.75 ppm, ; STEL 2ppm
	TLV(ACGIP)	Ceiling 0.3ppm
Nuisance/Inert Dust	PEL (OSHA)	15 mg/cu m(total)
		5 mg/cu m (respirable)
Nuisance Particulates	TLV(ACGIP)	10 mg/cu m (total)
		3 mg/cu m (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** : > 93 deg C (> 200 deg F) by Tag Closed Cup Method.**Evaporation rate**: Not applicable**Inflammability**: No data available**Explosion range** : No data available**Vapor Pressure** : < 0.001mm Hg**Water Solubility** : Negligible < 0.1%**Relative vapor density** : Not applicable**Specific Gravity** : 1.38 - 1.42**Partitioning coefficient n-octanol/water (log Kow)**: No data available**Ignition temperature** : 350 deg C (662 deg F)**Decomposition temperature** : > 240 °C

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Viscosity : Refer to the grade data sheet

Molecular weight : Not applicable

10. Stability and Reactivity

Chemical Stability : Stable under normal conditions of use and storage.

Condition to Avid

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. At melt temperatures, acetal resins are incompatible with halogenated polymer such as PVC, PVDC and any elastomers containing halogenated polymers.

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 : Trioxane, Formaldehyde and Formic acid.

Hazardous Polymerization : Will not occur.

11. Toxicological Information

No specific information available on the product.

12. Ecological Information

Ecotoxicity : No specific information available on the product.

Environmental Information : This material is considered to be non-biodegradable.

13. Disposal Considerations

Disposal

Recycling is encouraged. Dispose in accordance with all applicable regulations. This product, as shipped, is not a RCRA hazardous waste under present EPA regulations.

14. Transport Information

UN No. : Not classified as a dangerous good under transport regulations. (UN RTDG)

Shipping information : Not applicable

Transport hazardous grade : Not applicable

Container grade : Not applicable

Marine Pollution : Not applicable

Safety measure for transport : Not applicable

- **Fire** : No available data

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- Leak : No available data

15. Regulatory Information**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.

Labeling According to EEC Directives : Not subject to labeling.

Germany Regulations : Not classified according to German "Hazardous Substance" regulations.

EU regulation : Not contain materials listed in ;

WEEE (Waste on Electrical and Electronic Equipment): EU-Directive 2002/96/EC

RoHS(Restriction of Hazardous Substances in electrical and electronic equipment) : EU-Directive 2002/95/EC

Directive 2003/11/EC: Restriction (ban) of Pentabromodiphenylether and octabromodiphenylether

16. Other Information**Source**

- Hazardous Substances Data Bank (HSDB)
- UN RTDG (Recommendations on the Transport of Dangerous Good) Rev.17
- International Uniform Chemical Information Database (IUCLID)

Revision : 12 (July 17th 2012)

Disclaimer

This product is not intended for use in medical applications involving permanent implantation in the human body.

The information contained herein is based on the present state of our knowledge. 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. 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. Users must meet all applicable safety and health standards.

- The End of MSDS -