

Material Safety Data Sheet

1. Chemical Product and Company Identification

Product name : "Kocetal" Kx00 xy

x = 1,3,5,7,9 (Viscosity Index)

xy = Color Index

Name of supplier : KTP Industries, Inc.

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Manager of Technical Department : Manager of Technology & Development Team

2. Composition/Information on Ingredients.

Chemical name : Polyoxymethylene

Synonyms : Polyacetal (POM)

Substance/Mixture : Substance

Common chemical name Polyoxymethylene

Composition: 99%<

Chemical formula(Constitutional/Structural formula)

Gently rinse eyes with clean water for at least 15 minutes. (remove contact lenses if he is wearing) Arrange for transportation to the nearest medical facility for examination and treatment by a doctor as soon as possible.

Refrain from rubbing eyes.

In case of powder or pellets entering the eyes, rinse immediately with cold water. If discomfort persists, consult a doctor.

Ingestion :

S45-In case of ingestion, seek medical advice immediately (show the product label where possible).

Rinse mouth with water. Drink one or two glasses of water, and induce vomiting.

5. Fire-Fighting Measures

Extinguishing Media :

S43-In case of fire, use water mist, water jet, foam, dry powder, CO₂,

Specific Hazards with regard to Fire-Fighting Measures :

S41-In case of fire and / or explosion do not inhale fumes.

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Toxic gases will form upon combustion of : carbon monoxide, carbon dioxide, formaldehyde

Specific fire-fighting measures :

Apply water from a safe distance to cool and protect surrounding area.

Keep personnel removed from the area downwind of the fire.

Evacuate non-essential personnel to safe area.

Avoid pouring water onto molding machines.

Protection of fire-fighters :

Firefighters should wear proper protective equipment. (i.e. chemical-cartridge respirator ,gas mask)

6. Accidental Release Measures

Measures for Handling Personnel :

Pellets on road or floor may cause slippage and falling.

Measures for environmental effects :

Do not flush into sewerage systems or waterways.

If pellets get released into the environment, take adequate steps to prevent aquatic animals and birds from ingesting pellets.

Measures when handling spilled substances :

Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident :

7. Handling and Storage

Handling :

Preventive measures :

Exposure control for handling personnel :

S20-Do not eat or drink whilst handling..

S21-Do not smoke during handling

S22-Do not inhale dust.

S23-Do not inhale gas, fumes

S51-Use only in well-ventilated areas.

Always provide adequate ventilation to maintain safe working environment.

Low levels of formaldehyde may remain in the headspace of bags. Bags of resin should be opened in a well-ventilated area.

In case of drying resin, a drier equipped with a ventilator should be used.

Collect any spilled pellets from the floor to prevent slippage.

Protective measures against fire & explosion :

S33-Take precautionary measures against static discharges.

Shut off all gas pilot and electrical (spark or hot wire) igniters and other sources of ignition during use and until all vapors(odors) are gone.

Do not subject to friction or shock.

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

Safety Measures/ Incompatibility :

S29-Do not empty into drains.

S50-Do not mix with the following, in molding machine: acids, oxidizing agents, PVC

Incompatibility (Specific materials to be avoided) acids, oxidizing agents, PVC

Protect against physical damage.

Do not drop onto, or slide across sharp objects.

Avoid rough handling or dropping.

Avoid resin temperatures and residence times which may cause resin decomposition.

Do not heat resin to over 250 °C

At shot-down, ensure that all resin has been expelled from the cylinder, nozzle, hot runner, and other high temperature zones.

Always submerge purged resin in water immediately after purging, to prevent air contamination of working environment.

Storage :

Incompatible storage conditions :

S15-Keep away from heat.

S16-Keep away from sources of ignition -No smoking.

Keep away from heat source, steam pipes, direct sunlight and store in a cool, dark place.

8. Exposure Control/Personal Protection

Engineering measures :

Atmospheric levels should be maintained below the exposure guidelines.

Powder handling should be carried out in a closed system.

When processing, partial ventilation is desirable to eliminate generated gas and dust.

Adopted values :

Japan Society for Occupational Health(1997)

Inhalation dust : 2mg/m³

Total dust : 8mg/m³

ACGIH(1996) TWA : 10mg/m³

Personal protective equipment :

Respiratory protection :

S38-In case of insufficient ventilation, wear suitable respiratory equipment.

For most conditions, no respiratory protection is required. However, in dusty environments, use

an approved dust respirator.

Hand protection : S37-Wear suitable gloves.

Eye protection : Wear protective eyeglasses or chemical safety goggles.

Skin and body protection : S36-Wear suitable protective clothing.

Safety and Health measures :

Wash hands before breaks and at the end of work.

Do not eat, drink or smoke at work.

Formaldehyde should not pose a risk in humans, if exposure levels are kept below the following recommended limits.

Japan Society for Occupational Health (1995) Tolerance concentration : 0.5ppm

OSHA standard (1992) PEL-TWA : 0.75ppm

PEL-STEL : 2ppm

ACGIH TLV's (1998)

TLV-TWA : 0.3ppm

Ministry of Health, Labour and welfare(Japan)

Guideline of formaldehyde concentration of working environment (2002) ; 0.08ppm

9. Physical and Chemical Properties

Physical properties :

Appearance : Pellet form solids

Color : White

Odor : None(Depending on storage conditions, irritating smell may be noticed.)

Phase change temperature :

Boiling point : None

Melting point : 167°C

Flash point : >320°C

Ignition temperature : >400°C

Explosion : Not Available

Vapour pressure : None

Vapour density : None

Density : 1410kg/m³

Solubility :

Solubility in Water : Not soluble

Solubility characteristics to other solvents : N.A.

10. Stability and Reactivity

Stability :

This product is considered a stable material under normal and anticipated storage and handling conditions.

Reactivity :

May form explosive dust-air mixtures.

Incompatibility :

Avoid of mixing acids, oxidizing agents and PVC in molding machine.

Decomposition products :

Formaldehyde, Trioxane, Carbon-monoxide, Formic acid.

Polyoxymethylene tends to generate formaldehyde gas during melting and residing in the cylinder of the molding, extruding or other processing machine and during combustion and drying.

11. Toxicological Information

Acute toxicity :

N.A.

Effects on skin, eyes and others :

Gas generated during drying or molding is irritating to eyes, skin and throat.

Allergenic and/or sensitizing effects :

N.A.

Chronic and/or long term toxicity :

N.A.

Carcinogenic effects :

N.A.

Mutagenic effects :

N.A.

Teratogenic effects :

N.A.

Toxicity for reproduction :

N.A.

Others :

Formaldehyde released in small quantity during melting and processing is classified as an

animal carcinogen and has OSHA & ACGIH permissible exposure limits.

Formaldehyde classification of carcinogen;

IARC 1

EPA B1

NTP b

ACGIH A2

12. Ecological Information

Biodegradability : N.A.

Bioaccumulation : N.A.

Fish toxicity : N.A.

13. Disposal Consideration

Recycling is encouraged.

Do not dump into sewers, in the ground or into any body of water.

Dispose of at an authorized waste collection point.

Dispose of in accordance with federal, state, and local regulations.

14. Transport Information

International guide line :

No information available.

Specific safety measures and conditions during transportation:

To keep packaging clean, avoid moisture and rough handling. In case bags are damaged and pellets have been released and spilled, sweep up and place in disposal container immediately.

15. Regulatory Information

Other regulatory information :

We are unable to check the regulations relating to this product in your country or region, and we request that this be done at your discretion.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

Ensure that this material is in compliance with local and national requirements.

R,S Danger Notice :R10,S51,S23,S37/38

16. Other Information/References

Other information :

This product is not intended for use in medical or dental implants.

The information relates to this specific product. It may not be valid for this product, if used in combination with any other materials or in any other process.

It is the user's responsibility to ascertain the suitability and completeness of this information for the user's particular use.

The information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. We advise users conduct their own tests to determine the safety and suitability of each product, or products used in combination with other products, for their specific purposes. User has the sole responsibility to determine the suitability of the products for any use and the manner of use contemplated.

The information herein is given in good faith, but no warranty, express or implied, is made. Please consult us for further information.

Inquiries relating to the contents of this Data Sheet should be made to the following :

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