

Company name; KURARAY CO., LTD.
Products name; Vecrus MBBK
File NO. VECRUS MBBK-002

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MATERIAL SAFETY DATA SHEET (MSDS)

Issued Oct. 1, 2003

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File NO. VCRUS MBBK-001

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

CHEMICAL PRODUCT NAME ; VECRUS MBBK

NAME OF COMPANY ; KURARAY CO., LTD

SECTION IN CHARGE ; NEW BUSINESS DEVELOPMENT DIVISION

ADDRESS ; OOTE CENTER BLDG. 1-1-3 OOTEMATI CHIYODA-KU
TOKYO, 100-8115 JAPAN

TELEPHONE NUMBER ; 03-6701--1687

FACSIMILE NUMBER ; 03-6701-1654

MANUFACTURE PLANT ; SAIJO PLANT (EHIME PREFECTURE)

2. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE / PRIPERATION ; Substance

COMMON CHEMICAL NAME ; Aromatic Liquid Crystal Polymer

SYNONYMS ; Aromatic Liquid Crystal Polymer (LCP)

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INGREDIENTS AND COMPOSITION ; LCP100%

CHEMICAL FORMURA ; not open

SERIAL NO. IN OFFICIAL GAZETTE ; not pen

CAS NO. ; not open

3. HAZARD IDENTIFICATION

HUMAN HEALTH EFFECT ; not applicable

ENVIRONMENTAL EFFECTS ; not applicable

THE CLASSIFCATION ; not applicable

4. FIRST-AIDMEASURES

INGESTION ; Help to vomit as much as possible. If sick feeling continues, and ask a physician for advice.

INHALATION ; When a gas generated from the molten polymer has been inhaled, remove fresh air without delay and wait until the victim is recovered. If sick feeling continues, and ask a physician for advice.

SKIN CONTACTS; Cool the contacted skin with clean water without delay, if a contact with the polymer in a molten form. Do not force to remove the solid resin on the

skin. If any burns are observed on the skin, ask a physician for advice.

EYE CONTACTS ; Cool and rinse the eye with clean water for at least 15 minutes when the

eyes had contact with molten polymer. In case of wearing contact lenses,

remove the lenses as soon as possible, and ask a physician for advice.

When the eye had contacted with the polymer in an ordinary solid form,

rinse the eye with clean water without delay. If the discomfort persist, ask

a physician for advice.

5.FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA; Water, form fire-extinguish agent, and carbon dioxide gas.

SPECIFIC METHODS ; Extinguish the fire with water. A method of extinguish or ordinary

fire may applied. Do not apply water directly to processing

machines.

SPECIFIC HAZARD ; Incomplete combustion leads to generation of toxic gas such as

carbon monoxide or phenol, in addition to carbonic acid gas and

water.

SPECIAL EQUIPMENT FOR THE PROTECTION OF FIREFIGHTERS;

In case the fire gained force, use a gas mask or other protective

equipment.

6. ACCIDENTAL LEAKAGE MEASURES

PERSONAL PRECAUTIONS ; When the pieces of non-woven are spilled on the floor, wipe them off with the broom or cleaner not to cause slipping.

ENVIRONMENTAL PRECAUTIONS ;Handle the pieces in order to prevent in takes by marine animals and birds.

7.HANDLING STRAGE

HANDLING; This non-woven will neither ignite nor explode at room temperature.

HANDLING2; Avoid inhaling of gases generated in heat treatment.

HANDLING3; Avoid retaining hot state in the processing machine for many hours.

HANDLING4; The pieces of the non-woven spilled on the floor are likely to cause slipping.

Remove such spillage at any times.

STORAGE ; Keep the non-woven away from any fire or heat sources for the sake of safe storage.

8. EXPLOSURE CONTROL / PERSONAL PROTECTION

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CONTROL CONCENTRATION ; Non at present

PERMISSIBLE CONCENTRATION; No finding

RESPIRATORY PROTECTION ; No need at room temperature

EYE PROTECTION ; Wear the protective glass or goggles against burns
when handling the melting state.

HAND PROTECTION ; Wear the heat resistant gloves against burns when
handling the melting state.

9. PHISICAL AND CHEMICAL PROPERTIES

APPEARANCE ; Non-woven

BOILING POINT ; Not applicable

VAPOUR PRESSURE ; Not applicable

VOLATILITY ; Not applicable

SUBLIMATION ; None

MELTING POINT ; 345-370 degree Celsius (DSC)

DENSITY ; 0.1- 1.4 (Non-woven), 1.4 (Material polymer)

SOLUBILITY ; Insoluble in water

IGNITION POINT ; 540 degree Celsius or higher

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EXPLOSION PROPERTY ; Not applicable

INFLAMMABILITY ; None

REACTIVITY WITH WATER; None

OXIDIZABILITY ; None

SELF-REACTIVITY ; None

10. STABILITY AND REACTIVITY

STABILITY AND REACTIVITY ; Stable for normal storage or handling

11. TOXICOLOGICAL INFORMATION

SKIN CORROSIVE PROPERTIES ; No finding

SENSITIZING&IRRITANTEFFECTS; Gas generated in heat treatment is irritating eyes and
skins.

ACUTE TOXICITY ; LD50 (dermal)- rat >2.0g/kg

SUBACUTE TOXICITY ; No finding

CHRONIC TOXICITY ; No finding

CARCINOGENECITY ; No finding

MUTAGENECITY(Micro-organisms,

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chromosomal aberration) ; No finding

REPRODUCTIVE TOXITY ; No finding

TERATOGENICITY ; No finding

OTHERS (Including generation of hazardous gases by reaction with water for example)

; No finding in this report means that there will be no hazard in general, but no proving data available at the time of reporting.

12. ECOLOGICAL INFORMATION;

BIODEGRADABILITY ; No finding

BIOACCUMLATION ; No finding

FISH TOXICITY ; No finding

13. DISPOSALCONSIDARATION;

WASTE FROM RESIDUES ; This is designated as waste plastics among industrial waste by the Waste Disposal Law. Disposal waste non-woven through licensed waste handlers or local autonomous bodies if they are handling wastes disposal.

WASTE FROM RESIDUES 2; When disposed by incineration, use the well controlled

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incinerators in accordance with the Waste Disposal Law, Air

Pollution Control Law and Water Pollution Prevention Law.

14. TRANSPORT CONSIDERATION

UN CLASSIFICATION NO. ; Not applicable

OTHER CAUSIONS ; Handle with care so as not to give damages to containers
or not to be subjected to wetting.

OTHER CAUSIONS 2 ; Secure the containers firmly so as not cause collapsing.

15. REGULATORY INFORMATION

WASTE DISPOSAL LAW ; Waste plastics among industrial wastes.

16. OTHER INFORMATION

HANDLING OF THE DETAILS GIVEN ABOVE;

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is prepared for domestic use. Details given above are based on references,
information and data available at this moment, but no warranty can be made
on exactness of these details, They are also prepared on the assumption that

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the product will be handled in a normal way. For special handling, adequate safety and environmental measures should be taken in respect to its applications. Our products are not specifically intended for implants for medical and dental applications, and therefore they are not recommended for such applications. “ No finding” in this report means that there will be no hazard in general, but no proving data is available at this time of reporting.

WHERE TO CALL FURTHER INFORMATION;

Mr. Kenji Saimen,

Senior Researcher, Charge in Vecrus

NEW BUSINESS DEVELOPMENT DIVISION

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