

SAFETY DATA SHEET(SDS)

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FileNo. 1002-2

1. Chemical Product & Company Identification

CHEMICALPRODUCT NAME: DURACON® SW-22 Colored
NAME OF COMPANY: Polyplastics Co.,Ltd.
ADDRESS: 2-18-1 Konan, Minato-ku, Tokyo,108-8280 Japan
SECTION IN CHARGE: Quality Assurance Dept.
TELEPHONE NUMBER: 03-6711-8605
FACSIMILE NUMBER 03-6711-8616

2. Hazards identification

[GHS CLASSIFICATION]

Physical and Chemical Hazards : ·Flammable solids : Classification not possible
·Self-reactive substances and mixtures : Not applicable
·Pyrophoric solids : Not classified
·Self-heating substances and mixtures : Classification not possible
·Substances and mixtures, which in contact with water, emit flammable gases : Not classified
·Oxidizing solids : Not classified
·Corrosive to metal : Not classified

Health Hazards : ·Carcinogeneses : Category 2 (CB)
·Specific target organ/systemic toxicity (Repeated exposure) : Category 2(Lung) (CB)

Environmental Hazards : Classification not possible

[SYMBOL]



[SIGNAL WORD]

: Warning

[HAZARD STATEMENT]

: ·Suspected of causing cancer. (CB)
·May cause damage to organs(Lung) through prolonged or repeated exposure. (CB)

[PRECAUTIONARY STATEMENTS]

Prevention : ·Obtain special instructions before use.
·Do not handle until all safety precautions have been read and understood.
·Wear protective gloves/protective clothing/eye protection/face protection.
·Do not breathe dust/fume/gas/mist/vapours/spray.
·Wash hands thoroughly after handling.

Response : ·If exposed or concerned: Get medical advice/attention.
·Get medical advice/attention if you feel unwell.

Storage : ·Store locked up.
·Avoid direct sunlight and store in a well-ventilated place.

Disposal : Dispose of contents/container in accordance with local & national regulations.

3. Composition/information on ingredients

SUBSTANCE/PREPARATION : Mixture
COMMON CHEMICAL NAME : Polyoxymethylene
SYNONYMS : Polyacetal(POM)
INGREDIENTS AND COMPOSITION : POM \geq 73.5%, Carbon black \leq 1.5%,
Potassium titanate whisker, other polymer, etc. \leq 25%

CHEMICAL FORMULA	:	$\left[\text{-(CH}_2\text{-O)}_p \text{ / - (CH}_2\text{CH}_2\text{O)}_q \right]_n$
SERIAL No. IN OFFICIAL GAZETTE	:	7-129(base resin) (Law Concerning Examination and Regulation of Manufacture, etc., of Chemical Substances)
CAS No.	:	24969-26-4(base resin)
INGREDIENTS CONTRIBUTING TO THE HAZARD	:	Formaldehyde. Cadmium, lead, hexavalent chromium and mercury are not used in this grade.

4. First-aid measures		
INGESTION	:	When a gas generated from the molten polymer has been inhaled, move to area of fresh air without delay and wait until the victim is recovered. If sick feeling continues, ask a physician for advice.
SKIN CONTACT	:	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 CONTACT	:	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 contact with the polymer in an ordinary solid form, rinse the eye with clean water without delay. If the discomfort persists, ask a physician for advice.
SWALLOW	:	Help to vomit as much as possible. If sick feeling continues, ask a physician for advice.

5. Fire-fighting measures		
EXTINGUISHING MEDIA	:	Water, foam fire-extinguishing agent, powder fire-extinguishing agent, and carbon dioxide gas.
SPECIFIC METHODS	:	Extinguish the fire with water. A method of extinguishing an ordinary fire may be applied. Do not apply water directly to processing machines.
SPECIFIC HAZARDS	:	Incomplete combustion leads to generation of toxic gases such as carbon monoxide or formaldehyde, in addition to carbonic acid gas and water.
SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS	:	In case the fire gained force, use a gas mask or other protective equipment.

6. Accidental release measures		
PERSONAL PRECAUTIONS	:	When pellets were spilled on the road or floor, wipe them off with a besom or cleaner not to cause slipping.
ENVIRONMENTAL PRECAUTION	:	Handle the spillage in accordance with provisions given in the "Resin pellet spillage preventive manual", in order to prevent intakes by marine animals and birds.

7. Handling and storage		
HANDLING	:	Polyacetal resin in a pellet form will neither ignite nor explode at room temperatures, but it falls under the inflammables designated by the Fire Service Law. Keep it away from the igniting sources, as it quickly gains force once it is ignited.
HANDLING 2	:	Polyacetal resin in a powdered form is likely to cause dust explosion and is therefore designated in the Guideline for Hazard of Dust Explosion in U.S.Bureau of Mines. Effective earthing means or use of inert gas like N2 are required for dust handling equipment to eliminate static electricity.
HANDLING 3	:	This pellets spilled on the floor are likely to cause slipping. Remove such spillage at any times.

HANDLING 4	:	For molding work, effective means for local exhaust are required to discharge gases generated by melt processing.
HANDLING 5	:	Avoid inhaling of gases generated in molding work. Do not directly touch resin of high temperature.
HANDLING 6	:	Avoid retaining hot resin in the processing machines for many hours.
HANDLING 7	:	Avoid mixed extrusion with strong acid, oxidizing agents and PVC.
HANDLING 8	:	Potassium titanate fiber are not generally exposed in a single substance under normal processing and handling conditions as they are compounded in pellets. However, the following measures will be necessary to minimize the exposure to Potassium titanate fiber or dusts containing Potassium titanate whisker, when pellets or molded parts containing Potassium titanate fiber are cut, ground or burnt, depending on environmental and operational conditions. ·Those who are sensitive in skin to Potassium titanate fiber should wear suitable(protective) clothes to minimize the exposure of their skin. ·Wash working clothes apart from other laundry, so that the latter will not cause contamination with Potassium titanate fiber. ·Provide the workshop with partitions to prevent diffusion of Potassium titanate fiber dusts. ·Pay precautions not to rub face, neck or arms with hands. Wash hands and gargle after working without fall. ·Keep dust sources totally enclosed. ·Provide local air exhausters and implement periodical inspections and adjustments at least once a year. ·Reduce cutting and grinding processes to the possible minimum, and devise working procedures to minimize dust generation. ·Provide dust-preventive masks, protective glasses and gloves for personal hygiene. ·Determine the operational environment at indoor working places and confirm the effects of environmental improvement.
STORAGE	:	Keep the substance away from any fire or heat sources for the sake of safe storage.
STORAGE 2	:	This polymer is a synthetic resin designated as an inflammable substance by the Fire Service Law and should be handled in accordance with municipal rules and regulations (concerning fire-fighting equipment, indoor storage, for instance).
RECOMMENDED PACKAGING MATERIALS	:	No information.

8. Exposure controls/ personal protection

CONTROL CONCENTRATION	:	None at present
PERMISSIBLE CONCENTRATION	:	OSHA PEL/1985 Max. permissible concentration of inactive powder 15mg/m ³ - ditto - (Aspiration) 5mg/m ³ ACGIH TLV/1992 1993 Exposure limit of the powder TWA 10 mg/m ³ (Reference) Human exposure to formaldehyde - Ministry of Health & Welfare/2002 Guideline value 0.08 ppm OSHA Parameter/1992 TWA 0.75 ppm STEL 2 ppm ACGIH TLV/1992 1993



	TWA 0.3 ppm
ENGINEERING MEASURE	: ·When handling dust: Use totally enclosed containers resisting dust explosion. ·When heat melted in molding: Effective local ventilation must be provided.
PERSONAL PROTECTIVE EQUIPMENT	
RESPIRATORY PROTECTION	: Wear a dust-proof mask.
HAND PROTECTION	: Wear heat-resisting gloves against burns, when handling molten polymer.
EYE PROTECTION	: Wear protective glasses or goggles.
SKIN & BODY PROTECTION	: Wear long sleeve clothes against burns, when handling molten polymer.

9. Physical and chemical properties

APPEARANCE etc.	: Pellet
BOILING POINT	: Not applicable
VAPOUR PRESSURE	: Not applicable
VOLATILITY	: Not applicable
INITIAL BOILING POINT	: Not applicable
SUBLIMATION	: None
MELTING POINT	: 165°C
DENSITY	: 1.47
SOLUBILITY	: Insoluble in water
FLASH POINT	: 320°C or higher
IGNITION POINT	: 400°C or higher
EXPLOSION PROPERTY	: Not applicable
INFLAMMABILITY	: Inflammable(Designated as inflammable resin by the Fire Service Law)
REACTIVITY WITH WATER	: None
OXIDIZABILITY	: None
SELF-REACTIVITY	: None
DUST EXPLOSIVENESS	: Upper explosion limit : Not applicable. Lower explosion limit : 35g/m3

10. Stability and reactivity

STABILITY AND REACTIVITY CONDITIONS TO AVOID	: Stable for normal storage or handling. Avoid contacts with strong acid, oxidizing agent or PVC under hot melt conditions.
HAZARDOUS DECOMPOSITION PRODUCTS	: Formaldehyde will be generated when heated (for drying or melting) or burnt.

11. Toxicological information

SKIN CORROSION/IRRITATION	: No finding.
SERIOUS EYE DAMAGE/IRRITATION RESPIRATORY OR SKIN	: Gas generated in drying or melting is irritating eyes and skins.
SENSITISATION	: No finding
ACUTE TOXICITY(INCLUDING LD50)	: No finding.
SUBACUTE TOXICITY	: No finding.
CHRONIC TOXICITY	: This product contains the substance that may cause damage to lung and respiratory through prolonged or repeated exposure.(Potassium titanate fiber)
CARCINOGENECITY	: This product contains the substance of carcinogenic category 2 in the GHS classification.(CB)
MUTAGENECITY(Micro organisms, chromosomal aberration)	: No finding.
REPRODUCTIVE TOXICITY	: No finding.
TERATOGENICITY	: No finding.
OTHERS(Including generation of	: No finding in this report means that there will be no hazard in

hazardous gases by reaction with water, for example)

OTHER CAUTIONS

OTHER CAUTIONS 2

OTHER CAUTIONS 3

general, but no proving data available at the time of reporting.

- : With regard to dust, the maximum permissible concentration and limits are fixed by OSHA and ACGIH.
- : Formaldehyde will be generated when heated (for drying or melting) or burnt.
- : Hazardousness of Potassium titanate fiber as filler is as follows.

(1) Acute toxicity

Short-term harmful effects are not expected from skin contact, inhalation or swallowing.

Oral LD50 : >2000 mg/kg (mice)

Dermal LD50 : >2000 mg/kg (rats)

(2) Skin corrosion/irritation

Primary skin irritation: Negative (rabbits)

(3) Serious eye damage/eye irritation

Primary eye irritation: Very slight irritant (rabbits)

(4) Carcinogenic

Regarding carcinogenicity, IARC(the International Agency for Research on Cancer) classified the family of ceramic fibers, which contains potassium titanate fibers, in group 2B as possibly carcinogenic to humans in 1988.

In 2001, IARC re-evaluated Man Made Vitreous Fibers (MMVF). In IARC Monographs Volume 81 (2002), there was no category for the crystalline ceramic fibers in any Classified Groups, since the crystalline fibers had not been evaluated in the latest meeting.

NTP classified Ceramic Fibers (respirable Size) in Reasonably Anticipated to be a Human Carcinogen in the 12th Report of Carcinogen.

(5) Germ cell mutagenicity

Ames test: Negative

(6) Specific target organ systemic toxicity(Repeated exposure)

Prolonged or repeated inhalation exposure to excessive concentrations of dusts may cause adverse effects to lung.

In a two-year chronic inhalation study, there was no increase in the incidence of primary tumors of lung or upper respiratory tract in Potassium titanate fiber-exposure groups. Exposure to a high concentration (200 WHO fibers/cc) of Potassium titanate fibers was associated with alveolar and visceral pleural fibrosis.

Note: WHO fibers are particles with a ratio of length to diameter greater than 3:1 and which are longer than 5 μ m and have a diameter less than 3 μ m.

OTHER CAUTIONS 4

- : Carcinogenicity class of formaldehyde, which may be generated if overheated.

IARC(International Agency for Research on Cancer): Group1

OTHER CAUTIONS 5

- : Toxicological information of Carbon black which is an ingredient is shown below. Toxicity of the ingredient does not appear as product for pellet. When dust is generated by cutting and sanding, toxicity appears. Avoid breathing dust and avoid generating dust.

[Carbon black]

Acute toxicity

Oral: Rat LD50 15,400mg/kg GHS Not classified

Dermal: No information



Inhalation: No information
 Skin Corrosion/Irritation: No information
 Eye Damage/Irritation: No information
 Sensitization–Skin: No information
 Germ Cell Mutagenicity: No information
 Carcinogenicity: IARC 2B; Possible carcinogenic to humans.
 Toxicity to Reproduction: No information
 Specific Target Organ Toxicity(Single Exposure)
 No information
 Specific Target Organ Toxicity(Repeated Exposure)
 Category 1 based on the influence on lungs (the hyperplasia of the epithelium, pulmonary fiber symptom) in pneumoconiosis of human and a rat inhalational examination in the range of guidance level
 Category 1
 Aspiration Hazard: No information

REMARKS : Hazards information and so on result from the national classification of carbon black.

12. Ecological information
 BIODEGRADABILITY : No finding.
 BIOACCUMULATION : No finding.
 FISH TOXICITY : No finding.
 HAZARDS TO OZONE LAYER : None

13. Disposal considerations
 WASTE FROM RESIDUES : This is designated as waste plastics among industrial wastes by the Wastes Disposal Law. Disposal waste pellets through licensed wastes handlers or local autonomous bodies if they are handling wastes disposal.
 WASTE FROM RESIDUES 2 : When disposed by incineration, use the well controlled incinerators in accordance with the Wastes Disposal Law, Air Pollution Control Law and Water Pollution Prevention Law.

14. Transport information
 UN CLASSIFICATION NUMBER : Not restricted for ICAO/IATA.
 OTHER CAUTIONS : Handle with care so as not to give damages to containers or not to be subjected to wetting.
 OTHER CAUTIONS 2 : Secure the containers firmly so as not to cause collapsing.

15. Regulatory information
 FIRE SERVICE LAW : Inflammable synthetic resin Designated quantity:
 More than 20m3 for the foamed product.
 More than 3,000 kg for other types.
 WASTE DISPOSAL LAW : Waste plastics among industrial wastes.
 INDUSTRIAL SAFETY AND HEALTH LAW : •Designated as Cabinet order No.93 Annex 9 No.130.(Carbon black)
 •Designated as Cabinet order No.93 Annex 9 No.314. (Synthetic vitreous fibers)
 OTHERS : Formaldehyde is designated as Class 2 substance by the Industrial Safety and Health Law(Regulations concerning hazards caused by specific chemicals) and designated as deleterious substance by the Poisons and Deleterious Substance Control Law. Recommended usage, criteria, and limit values are provided by Japan Industrial Safety and Health Society, OSHA and ACGIH.

16. Other information
 HANDLING OF THE DETAILS GIVEN : This SDS is the English version translated from the Japanese



ABOVE

SDS which 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 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 the time of reporting.

WHERE TO CALL FOR FURTHER
INFORMATION

: Polyplastics Co., Ltd. Quality Assurance Dept.
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