

Safety Data Sheet



1. Identification of the Substance/Mixture and the Supplier

Supplier : National Institute of Advanced Industrial Science and Technology (AIST)
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Office in Charge : Reference Materials Office, Center for Quality Management of Metrology, National Metrology Institute of Japan
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ID Number : 8112001

Identity of Substance/Mixture : Certified Reference Material NMIJ CRM 8112-a
Heavy metals (Cd, Cr, Hg, Pb) in ABS resin - low concentration pellet)
Recommended Use of the Chemical and Restriction on Use : This reference material can be used to control the precision of analysis or to confirm the validity of analytical methods or instruments during the quantitative determination of Cd, Cr, Hg and Pb in ABS resin or similar polymers.
Do not use this reference material for other purposes than testing/research.

2. Hazards Identification

GHS classification : Not applicable
GHS label element : Not applicable
Signal word : -
Hazard and toxicity : -
Other hazard and toxicity : Decabrominated diphenyl ether (DBDE) is contained. (Class 1 Specified Chemical Substances No.33)
Precautionary statement : [Preventive measures]
Toxic if ingested
[Response]
If swallowed, take a large amount of water to induce vomiting.
Seek medical advice.
[Storage]
Store in clean environment at 15 °C to 35 °C, and avoid direct sunlight.
Store in a locked area.
[Disposal]
This CRM contains the class I specified chemicals, therefore handle this CRM in accordance with Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

and Wastes Disposal and Public Cleansing Act.

Hazards not mentioned above are either not classifiable or not applicable.

3. Composition/Information on Ingredients

Substance or mixture : Mixture

Ingredient 1

Chemical name : Acrylonitrile-Butadiene-Styrene copolymer

Synonym : ABS resin

Chemical formula : $(C_8H_8-C_4H_6-C_3H_3N)_x$

Molecular weight : -

CAS number : 9003-56-9

Content : 99 % or over

Reference Number in : Act on the Evaluation of Chemical Substances and Regulation of
Gazetted List in Japan Their Manufacture, etc. : (6)-176

Industrial Safety and Health Act : Published

Ingredient 2

Chemical name : Cadmium oxide

Synonym : -

Chemical formula : CdO

Molecular weight : 128.41

CAS number : 1306-19-0

Content : Approximately 11 mg/kg (Approximately 9.4 mg/kg (as Cd))

Reference Number in : Act on the Evaluation of Chemical Substances and Regulation of
Gazetted List in Japan Their Manufacture, etc. : (1)-202

Industrial Safety and Health Act : Published

Ingredient 3

Chemical name : Lead chromate

Synonym : -

Chemical formula : $PbCrO_4$

Molecular weight : 323.2

CAS number : 7758-97-6

Content : Approximately 0.015 %
(Approximately 24 mg/kg (as Cr), 95 mg/kg (as Pb))

Reference Number in : Act on the Evaluation of Chemical Substances and Regulation of
Gazetted List in Japan Their Manufacture, etc. : (1)-286

Industrial Safety and Health Act : Published

Ingredient 4

Chemical name : Mercury sulphide

Synonym : -

Chemical formula : HgS

Molecular weight : 232.66
 CAS number : 1344-48-5
 Content : Approximately 0.011 % (94.10 mg/kg (as Hg))
 Reference Number in : Act on the Evaluation of Chemical Substances and Regulation of
 Gazetted List in Japan Their Manufacture, etc. : (1)-438
 Industrial Safety and Health Act : Published

Ingredient 5

Chemical name : Chromium(III) acetylacetonate
 Synonym : Acetylacetone Chromium(III) Salt
 Chemical formula : $C_{15}H_{21}CrO_6$
 Molecular weight : 349.32
 CAS number : 21679-31-2
 Content : Approximately 0.047 % (70.6 mg/kg (as Cr))
 Reference Number in : Act on the Evaluation of Chemical Substances and Regulation of
 Gazetted List in Japan Their Manufacture, etc. : (2)-2142
 Industrial Safety and Health Act : Published

Ingredient 6

Chemical name : Decabrominated diphenyl ether
 Synonym : DBDE, Deca-bromo-diphenyl ether
 Chemical formula : $C_{12}Br_{10}O$
 Molecular weight : 959.17
 CAS number : 1163-19-5
 Content : 360 mg/kg
 Reference Number in : Act on the Evaluation of Chemical Substances and Regulation of
 Gazetted List in Japan Their Manufacture, etc. : (3)-2846
 Industrial Safety and Health Act : Published

4. First-aid Measures

- ◇ If in eyes
 1. Rinse with plenty of clean water.
 2. Seek for medical assistance
- ◇ If on skin
 1. Rinse with plenty of clean water.
 2. Take off all the contaminated clothing and shoes, etc. Seek medical advice.
- ◇ If swallowed
 1. Wash the mouth well with water
 2. Seek medical advice
- ◇ Measures to be taken to protect the person applying first aid
 1. Use personal protective equipment.

5. Fire-fighting Measures

Extinguishing media : Water sprinkling, carbon dioxide, dry chemical powder, alcohol

	resistance foam, polymer foam
Specific hazards at the time of fire	: Combustion gas contains carbon monoxide, NO _x and CN, etc., so extinguish from windward side and avoid inhaling toxic gas if at all possible
Specific extinguishing measures	: Remove any source of ignition from the seat of fire and extinguish using appropriate extinguishing agent. Transfer the movable container to a safe place promptly. If impossible to transfer, use water spray to cool the periphery. Extinguish from windward side and avoid inhaling toxic gas if at all possible
Protecting fire-fighting personnel	: Protective clothing, air breathing apparatus, closed-circuit breathing apparatus, rubber boots.

6. Accidental Release Measures

- Sweep up the spilled material and collect them in an empty container
- Prevent this reference material from flowing into drain sewers and public waterways.

7. Handling and Storage

Handling

- Avoid contact with eyes, skin, clothing.
- No eating, drinking, smoking when handling
- Rinse away the contaminated spots well after handling

Storage

- Store in a brown bottle, avoid direct sunlight, in a clean place at 15 °C to 35 °C
- Lock and store strictly.

8. Exposure Controls/Personal Protection

Administrative levels

Not established

Occupational exposure limit(Cadmium oxide)

- ACGIH TLV-TWA(2000) : 0.01 mg/m³(Total dust/Particulate, as Cd)
: 0.002 mg/m³(Respirable dust, as Cd)
- Japan Society for Occupational Health : 0.05 mg/m³(as Cd)
Recommended Reference Value(1998)
- OSHA PEL TWA : 0.2 mg/m³(as Cd)

Occupational exposure limit(Lead chromate)

- ACGIH TLV-TWA(2000) : 0.05 mg/m³(as Pb)
: 0.012 mg/m³(as Cr)
- Japan Society for Occupational Health : 0.1 mg/m³ (as Pb)
Recommended Reference Value(1998) ; 0.05 mg/m³ (as Cr)

Occupational exposure limit(Mercury sulphide)

- ACGIH TLV-TWA(2001) : 0.025 mg/m³(as Hg)
- Japan Society for Occupational Health : 0.025 mg/m³(as Hg)
Recommended Reference Value(2001)

Occupational exposure limit(Decabromodiphenylether)

- Not established

Facility engineering

◇Storage precaution

- Avoid direct sunlight, at room temperature

Protective equipment

- Not necessary when handled normally.

9. Physical and Chemical Properties

- Appearance, etc. : Solid (granular)
- Color : Yellow
- Odor : No data
- pH : No data
- Melting point : Approximately 200 °C
- Boiling point : No data
- Flashing point : No data
- Explosive range : No data
- Vapor pressure : No data
- Relative vapor density(Air=1) : 1.034 g/cm³ $U=\pm 0.006$ ($k=2$)
- Specific gravity or bulk specific gravity : No data
- Solubility : Water insoluble
- n*-Octanol/water partition coefficient (Log Po/w) : No data
- Auto-ignition temperature : No data

10. Stability and Reactivity

◇Stability

1. Stable under normal condition, storage

◇Reactivity

- 1 May generate NO_x, CN, etc. by thermal decomposition

◇Conditions to avoid

No data available

◇Hazardous decomposition products

1. Carbon monoxide

11. Toxicological Information

- Acute toxicity
- Oral (Cadmium oxide)
 - Mice LD50: 72 mg/kg
 - Rats LD50: 72 mg/kg
 - Oral (Lead chromate)
 - Mice LD50: >12 g/kg
 - Oral (Mercury sulphide)
 - No data available

12. Ecological Information

Degradability, concentration

- Nonbiodegradable (Cadmium oxide)。
- Nonbiodegradable 1 % to 3 % (by BOD) carps 58 to 144 folds (2 mg / L) carps 358 to 821 folds
(0.2 mg/L) (Decabromodiphenylether)

Bioaccumulation

- Considered as no bioaccumulation, no bioconcentration, or low in bioaccumulation in fish and shell fish, Also considered not high in bioconcentration (Cadmium oxide)
- Considered as no bioaccumulation, no bioconcentration, or low in bioaccumulation in fish and shell fish, Also considered not high in bioconcentration (Decabromodiphenylether)

Ecotoxicity

- Red killifish LC50/48H > 500 mg / L (Decabromodiphenylether)

13. Disposal Considerations

- Residual Waste : This standard substance contains decabrominated diphenyl ether and should be handled appropriately, taking into account that it is Class I Specified Chemical Substance of the Law Concerning the Examination and Regulation of Manufacture, etc.
- Contaminated Container and Package : It corresponds to industrial waste and waste plastics of "Waste Disposal and Public Cleaning Law" (Waste Disposal Law). In accordance with the waste disposal method, Disposal of this reference material should be entrusted to a professional waste disposal company licensed by a prefectural governor.
- Contaminated Container and Package : Dispose of this CRM in accordance with applicable legislation and local government ordinance. Entrust disposal of this CRM to a professional waste disposal company licensed by the prefectural governor.

14. Transport Information

- UN number : Not applicable
- UN classification : -
- Material name : -
- Container grade : -
- ICAO/IATA : Not applicable
- Marine pollutant : Not applicable
- Precautions : Avoid sunlight, fire source. Prevent from spilling by dropping, or falling.

15. Regulatory Information

- ◇ Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

(Chemical Substances Control Law)

- Type 1 Specific Compound (Decabrominated diphenyl ether, No. 33)
 - ◇ Act on grasping emission amount of specified chemical substances to the environment and promoting improvement of management
 - Class I designated chemical substances (Decabrominated diphenyl ether, No. 1 - 255)
- ◎ **This SDS is originally prepared for the use of the material in Japan, thus the stated laws and regulations are stipulated and carried out in Japan. The use of the material in other countries should be referred to and by application of the relevant laws and regulations of the country in which the material will be used.**

16. Other Information

Others

The information in this document is not intended to be exhaustive and is based on currently available information and data. The measures given in this document are applicable only to normal handling conditions. When handling this reference material under special conditions etc., it is recommended to take safety measures appropriate to each specific application and context of use. This document is intended to provide information and not intended to guarantee anything in handling this reference material.
