Safety Data Sheet

National Institute of Advanced Industrial Science and Technology
AIST

1. Identification of the Substance/Mixture and the Supplier

Supplier	:	National Institute of Advanced Industrial Science and Technology (AIST)
Address	:	1-3-1 Kasumigaseki, Chiyoda, Tokyo, Japan
Office in Charge	:	Reference Materials Office, Center for Quality Management of Metrology, National Metrology Institute of Japan
Person in Charge	:	Certified Reference Material Staff
Telephone No.	:	+81-29-861-4059 Fax No. : +81-29-861-4009
Emergency Contact	:	Same as above
		Prepared on : July 13, 2009
		Revised on : April 25, 2018
		ID Number : 8136001
Identity of Substance/Mixture	:	Certified Reference Material NMIJ CRM 8136-a Heavy Metals (Cd, Cr, Hg, Pb) in PP Resin Disk - High Concentration
Recommended Use of the Chemical and Restriction on Use	:	This reference material can be used for controlling the precision of analysis or confirming the validity of analytical methods for chemical analysis of Heavy Metals (Cd, Cr, Hg, Pb) in PP resin or similar polymers. Do not use this reference material for other purposes than testing/research.

2. Hazards identification

GHS Classification : Carcinogenicity : Class 1A
Reproductive toxicity : Class 2

GHS Label element :

Signal word : Danger

Hazard and toxicity : Adverse effect or may affect to reproductive function or fetus
May be carcinogenic

Other hazard and toxicity : Decabrominated diphenyl ether (DBDE) is contained.
(Class 1 Specified Chemical Substances No.33)

Precautionary statement: :
［Preventative Measures］
Do not handle before going through and understanding the precautionary instruction thoroughly
Obtain handling instruction manual before using
Use personal protective equipment as required
Toxic if ingested orally
［Response］
If swallowed: Drink large amount of water and induce vomit.

Seek medical advice.
If exposed or may have been exposed, 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	:	Compound product
Ingredient 1		
Chemical name	:	Polypropylene resin
Synonym	:	PP resin
Chemical formula	:	$(C_3H_6)n$
Molecular weight	:	-
CAS number	:	9003-07-0
Content	:	Over 99 %
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : 6-402 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 0.01%
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (1)-202 Industrial Safety and Health Act : Published
Ingredient 3		
Chemical name	:	
Synonym	:	Lead (II) chromate
Chemical formula	:	Chrome yellow
Molecular weight	:	$PbCrO_4$
CAS number	:	323.2
Content	:	Approximately 0.15 %
Reference Number in	:	Act on the Evaluation of Chemical Substances and Regulation

Gazetted List in Japan		of Their Manufacture, etc. : (5)-5161 Industrial Safety and Health Act : Published

Ingredient 4

Chemical name	:	
Synonym	:	Chromium(III) acetylacetonate
Chemical formula	:	tris(acetylacetonato)chromium (III)
Molecular weight	:	$C_{15}H_{21}CrO_6$
CAS number	:	349.32
Content	:	Approximately 0.45 %
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : - Industrial Safety and Health Act : -

Ingredient 5

Chemical name	:	Mercury sulfide(II)
Synonym	:	-
Chemical formula	:	HgS
Molecular weight	:	232.66
CAS number	:	1344-48-5
Content	:	Approximately 0.1 %
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (1)-438 Industrial Safety and Health Act : Published

Ingredient 6

Chemical name	:	
Synonym	:	Decabrominated diphenyl ether (DBDE)
Chemical formula	:	Deca-bromo-diphenyl ether
Molecular weight	:	$C_{12}Br_{10}O$
CAS number	:	959.17
Content	:	Approximatly 0.01 %
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (3)-2846 Industrial Safety and Health Act : Published

4. First-aid Measures

◇If in eyes	:	1) Flush with plenty of clean water 2) Seek medical advice
◇If on skin	:	1) Flush with plenty of clean water, 2) Take off contaminated clothing or shoes, etc. seek medical advice.
◇If ingested	:	1) Drink lot of water and induce vomit, wash mouth with water until clean 2) Seek medical advice.
◇Measures to be taken to protect the	:	Use personal protective equipment. Rubber gloves, safety goggles

person applying first aid

5. Fire-fighting Measures

Extinguishing media	:	Water, carbon dioxide, dry chemical powder, alcohol resistant, polymer foam
Specific hazards at the time of fire	:	Because toxic gases such as carbon monoxide, etc. may be generated, to avoid inhaling toxic gases, if possible, extinguishing activities should be from windward.
Specific extinguishing measures	:	Immediately remove fire source materials from near the fire and start extinguishing with extinguishing agent, transfer movable containers promptly to safe place. Extinguish from windward to avoid inhaling toxic gases.
Protecting fire- fighting personnel	:	Fire resistant protective clothing, self-contained compressed air breathing apparatus, oxygen 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 the eyes, skin, clothing
- ・No eating, drinking or smoking while handling
- ・Rinse off well and decontaminate after handling
- ・Obtain instruction manual before the use

Storage
- ・Store in clean environment at 15 °C to 35 °C, and avoid direct sunlight.
- ・Store in a locked cabinet.

※ Refer to the Certificate for the appropriate condition of the certified reference materials storage and the usage precautions.

8. Exposure Controls/Personal Protection

・OSHA PEL TWA Permissible concentration (Lead chromate)	:	0.2 mg/m^3 (as Cd)
・ACGIH TLV-TWA (2000)	:	0.05 mg/m^3 (as Pb) 0.012 mg/m^3 (as Cr(VI))
・Japan Society for Occupational Health recommended reference value (1998) Permissible concentration (Acetylacetonate Chromium)	:	0.1 mg/m^3 (as Pb) 0.05 mg/m^3 (as Cr(VI))

・ACGIH TLV-TWA (2007) : 0.5 mg/m^3 (as Cr(III))
・Japan Society for Occupational Health recommended reference value (2007) : 0.5 mg/m^3 (as Cr(III))

Permissible concentration
(Mercuric sulphide)
・ACGIH TLV-TWA (2001) : 0.025 mg/m^3 (as Hg)
: 0.025 mg/m^3 (as Hg)

Permissible Concentration
(Decabrominated diphenyl ether (DBDE))
・Not establahed

・Japan Society for Occupational Health recommended reference value (2001)

8. Exposure Controls/Personal Protection

Safety control precautions
Not established

・ACGIH TLV-TWA (2000) : 0.01 mg/m^3 (total powder dust, as Cd)
0.002 mg/m^3 (inhalant powder dust, as Cd)
・Japan Society for Occupational Health recommended reference value (1998) : 0.05 mg/m^3 (as Cd)
・OSHA PEL TWA : 0.2 mg/m^3 (as Cd)

Permissible concentration
(Lead chromate)
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Permissible concentration
(Mercuric sulphide)
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0.025 mg/m^3 (as Hg)

Permissible Concentration (Decabrominated diphenyl ether (DBDE))

・Not established

Facility engineering control

◇ Storage precaution

・Store in clean environment at room temperature avoiding direct sunlight.

Protective equipment

・Not necessary under normal handling condition

9. Physical and Chemical Properties

・Appearance, etc.	:	Solid (disk)
・Color	:	White
・Odor	:	No data
・pH	:	No data
・Melting point	:	No data
・Boiling point	:	No data
・Flashing point	:	No data
・Explosive range	:	No data
・Vapor pressure	:	No data
・Relative vapor density(Air=1)	:	No data
・Specific gravity or bulk specific gravity	:	No data
・Solubility	:	Not soluble in water
・*n*-Octanol/water partition coefficient (Log Po/w)	:	No data
・Auto-ignition temperature	:	No data

10. Stability and Reactivity

◇Stability

・Stable under normal condition

◇Reactivity

・May generate toxic gases such as carbon monoxide, etc. by pyrolysis

◇Condition to avoid

・No data available

◇Hazardous decomposition products

・Carbon monoxide

11. Toxicological Information

Acute toxicity	< Cadmium Oxide > Oral mouse LD50 : 72 mg/kg, rat LD50 : 72 mg/kg < Lead chromate > Oral mouse LD50: >12 g/kg < Acetylacetonate Chromium > Oral rat LD50: 3360 mg/kg < Mercuric sulphide > No data
Carcinogenicity	Designated as Class 1A containing Class 1A Lead chromate 0.15 %
Reproductive toxicity	Designated as Class 2 containing Class 2 Lead chromate 0.15 %
Other toxicological information	・Japan Society for Occupational Health classifies Chrome as 'Group 2'respiratory sensitizer

・Japan Society for Occupational Health classifies Chrome as 'Group 1'dermal sensitizer

12. Ecological Information

Degradability, concentration
・Not microbial degradable (Cadmium oxide)
・Not microbial degradable 1 % to 3 % (by BOD) carp 58-144 fold (2mg/1)
carp 358-821 fold (0.2 mg/l) (Decabromodiphenylether)
Bioaccumulation
・No or very low bioaccumulation potential to fish and shellfish. The substance determined not highly-concentrated. (Cadmium oxide)
・No data. (Decabromodiphenylether)
Ecotoxicity
・Scarlet 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. ・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	:	-
Name	:	-
Container class	:	-
ICAO/IATA	:	Not applicable
Marine pollutant	:	Not applicable
Precautions	:	Transfer with care avoiding direct sunlight, leakage or spill due to fall, keep away from fire sources

15. Regulatory Information

◇Industrial Safety and Health Law
・Article 57-2 (Enforcement Order: Article 18) Hazardous substance whose name, etc. must be labeled.
・Article 57-2 (Enforcement Order: Article 18-2) Hazardous substance whose name, etc. must be notified No. 142 (Chrome and its compounds), No. 411 (Lead and its inorganic compounds) No. 315 (Mercury and its inorganic compounds)
◇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.