Safety Data Sheet

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 (NMIJ)
Person in Charge	:	Person in Charge of Certified Reference Materials
Telephone No.	:	+81-29-861-4059 Fax No. : +81-29-861-4009
Emergency Contact	:	Same as above
		Prepared on : June 2, 2006
		Revised on : August 31, 2022
		ID Number : 7304001
Identity of Substance/Mixture	:	Certified reference material: NMIJ CRM 7304-a Polychlorinated Biphenyls and Organochlorine Pesticides in Marine Sediment (High Pollutant Concentrations)
Recommended Use of the Chemical and Restriction on Use	:	This CRM is intended for the use in controlling the precision of analysis or confirming the validity of analytical methods or instruments during analysis of polychlorinated biphenyls (PCBs) and organochlorine pesticides (OCPs) in sediment samples and similar materials. Do not use this reference material for other purposes than testing/research. This CRM is a reference material (specified in the Japanese Industrial Standard (JIS) Q 0030).

2. Hazards Identification

GHS Classification:	No classification
GHS Label Element:	No classification
Signal Word:	-
Hazards Statement:	-
Other Hazards Statement::	In normal usage, the risks for eye and skin irritation are low. Also, harmful effects through inhalation, ingestion, or skin uptake are low. In case one inhales a large amount of dust, it can accumulate in the respiratory system and cause damage.
Precautionary Statement:	[Safety Precaution] Use the appropriate protective equipment, and does not deal directly with your hand. Avoid breathing dust. Avoid any exposure. First Class I specified chemical substances is persistent and has property to be highly concentrated, prolonged toxicity for human and ecotoxicity to high-order predatory animals.

Therefore, the container and equipment should be sealed and, the rational use of CRM by the implementation of recovery measures is required.
Regularly check the container not to leak the contained material.
Handling work be noted so that it does not scatter or outflow.
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Handling work be noted so that it does not scatter or outflow.
［Action］
If exposed or concerned: Get medical advice/attention.
［Storage］
Store this reference material in a light-shielded clean environment at about 5 °C. Once the container of this CRM was opened, close the container tightly as much as possible.
Store in a locked area.
［Disposal］
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.
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/Component Information

Single substance/Mixture	:	Mixture
Chemical name	:	Sea sediment
Synonym	:	-
Chemical formula		-
Molecular weight		-
CAS number		-
Content	:	99 % or over
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 : -

This CRM contains ingredients shown below;

Ingredient 1

Chemical name	:	Polychlorinated biphenyls (Class I specified chemical substances, No.1)
Synonym	:	PCBs

Chemical formula	:	-
Molecular weight	:	-
CAS number	:	1336-36-3
Content	:	< 0.0001 %
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (1)-306 Industrial Safety and Health Act : Published

Ingredient 2

Chemical name	:	1,1,1-Trichloro-2,2-bis [4-chlorophenyl] ethane (Class I specified chemical substances, No.7)
Synonym	:	4,4'-DDT
Chemical formula	:	$C_{14}H_9Cl_5$
Molecular weight	:	354.49
CAS number	:	50-29-3
Content	:	5.44 µg/kg
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (4)-910 Industrial Safety and Health Act : Published

Ingredient 3

Chemical name	:	1,1-Dichloro-2,2-bis [4-chlorophenyl] ethylene
Synonym	:	4,4'-DDE
Chemical formula	:	$C_{14}H_8Cl_4$
Molecular weight	:	318.03
CAS number	:	72-55-9
Content	:	5.37 µg/kg
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 4

Chemical name	:	1,1-Dichloro-2,2-bis [4-chlorophenyl] ethane
Synonym	:	4,4'-DDD
Chemical formula	:	$C_{14}H_{10}Cl_4$
Molecular weight	:	320.05
CAS number	:	72-54-8
Content	:	12.4 µg/kg
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	:	(1α,2α,3β,4α,5α,6β)- Hexachlorocyclohexane (Class I specified chemical substances, No. 22)
Synonym	:	γ-HCH, Linden

Chemical formula	:	$C_6H_6Cl_6$
Molecular weight	:	290.83
CAS number	:	58-89-9
Content	:	5.33 μg/kg
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (3)-2250, (9)-1652 Industrial Safety and Health Act : Published

4. First-aid Measures

Eye contact	:	Wash eyes with plenty of clean water. Seek medical attention.
Skin contact	:	Wash eyes with plenty of clean water.
Inhalation	:	Remove victim to fresh air and keep at rest in a position comfortable for breathing and warm. Get medical advice/attention immediately.
Ingestion	:	Rinse mouth thoroughly with water. Get medical advice/attention when feeling unwell.
Expected acute symptoms and delayed symptoms, most important signs and symptoms	:	Eye and skin irritation.
Most Critical Characteristic and Symptom	:	-
Protection for first aid provider	:	Wear appropriate protective equipment to avoid any exposure.

5. Fire-fighting Measures

Extinguishing Media	:	Use a fire extinguishing agent suitable for surrounding fire.
Specific hazards with regard to fire-fighting	:	This material is incombustible.
Specific methods of fire-fighting	:	Remove movable containers promptly to a safe place. In the case of immovable containers, cool their surroundings with sprayed water.
Protection for firefighters	:	Use personal protective equipment such as fire protection clothing, heat-resistant clothing, protective clothing, breathing apparatus, circulating oxygen respirator, rubber gloves, and rubber boots.

6. Accidental Release Measures

Personal precautions	:	Prepare fire-fighting equipment for the possibility of fires.
Protective equipment and emergency	:	Ventilate the affected areas thoroughly, if it is in an indoor environment, until the clean-up operation is completed. Use

measures		appropriate personal protective equipment during the operation to avoid skin contact of splash etc. and inhalation of dust and gas.
Environmental precautions	:	Take precautions to prevent spillage from draining into rivers etc. to adversely impact the environment. Make it sure to appropriately treat contaminated wastewater in order to prevent untreated wastewater from being released into the surrounding environment.
Recovery and neutralization	:	In case of leakage, retrieve and completely eliminate with tools such as vacuum cleaner.
Prevention of secondary disaster	:	-

7.Handling and Storage

Handling

Engineering Precautions	:	Avoid any exposure. Avoid any leakage into the environment.
Local and General Ventilation	:	Use local ventilation system in indoor handling areas.
Precautions for Safe Handling	:	Avoid rough handling such as turning over, dropping, giving a shock to or dragging containers. Prevent spill, overflow and scattering, and avoid vapor generation. Keep container tightly closed after using this reference material. Wash hands, face etc. thoroughly and gargle after handling this reference material. Do not bring gloves and other contaminated personal protective equipment into staff room. Make a place handling this reference material a restricted area to keep out unauthorized people. Use appropriate personal protective equipment to avoid inhalation and contact with eyes, skin and clothing.

Storage

Appropriate Storage Conditions	:	Store in a dark and clean environment at about 5 °C. Store in a locked area.
Safe packaging materials	:	Glass

8. Exposure Controls/Personal Protection

Threshold Limit Value

Polychlorinated biphenyl 0.1 mg/m^3

Permissible Concentration (Polychlorinated biphenyl)

・ACGIH TLV-TWA (2006)	:	1 mg/m^3(skin, Cl 42%) 0.5 mg/m^3(skin, Cl 54%)
・Value recommended by Japan Society for Occupational Health	:	0.01 mg/m^3(skin) Provisional value

(2006)
Permissible Concentration (1,1,1-trichloro-2,2-bis [4-chlorophenyl] ethane)
・ACGIH TLV-TWA (2003) : 1 mg/m^3
・Value recommended by Japan Society for Occupational Health (2003) : Not specified
Permissible Concentration ((1α, 2α, 3β, 4α, 5α, 6β) - hexachlorocyclohexane)
・ACGIH TLV-TWA (2003) : 0.5 mg/m^3(skin)
・Value recommended by Japan Society for Occupational Health (2003) : Not specified
Engineering controls
Ventilation/Exhaust : Local exhaust ventilation system or general ventilation system
Safety Control/ Gas Detection : -
Storing precaution : -
Personal Protective equipment
Respiratory protection : Protective dust mask, if necessary
Hands : Protective gloves
Eyes : Eye protector (Goggle type as necessary)
Skin and Body : Protective clothing
Hygiene measure
Avoid any direct exposure. Wear protective gloves.

9. Physical and Chemical Properties

・Appearance, etc. : Powder
・Color : Light brown
・Odor : Odorless
・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 : Insoluble in water
・*n*-Octanol/water partition coefficient (Log Po/w) : No data
・Auto-ignition temperature : No data

10. Stability and Reactivity

◇Stability

・Stable in normal conditions

◇Reactivity

・No-data

◇Conditions to Avoid

・Sunlight, Heat

◇Hazardous Decomposition Products

・No-data

11. Toxicological Information

Acute toxicity	Mouse LC50:1.9 g/kg (Polychlorinated biphenyl) Mouse LC50:135 mg/kg (1,1,1-trichloro-2,2-bis [4-chlorophenyl] ethane) Mouse LC50:44 mg/kg ((1α, 2α, 3β, 4α, 5α, 6β) - hexachlorocyclohexane)
Reproductive cell mutagenicity	・Chromosomal abnormality (rat, intraperitoneal): positive ・Chromosomal abnormality (rat, intraperitoneal and oral): positive (1, 1, 1-trichloro-2,2-)bis[4chlorophenil]ethane) ・Microorganism (bacteria coli): positive ・Chromosomal abnormality (hamster): positive ・Chromosomal abnormality; mouse (intravital, oral, intraperitoneal): positive ・Micronucleus; rat (intravital, intraperitoneal): positive ((1α, 2α, 3β, 4α, 5α, 6β)-hexachlorocyclohexane)
Carcinogenicity	・LARC ; Group 2A ・Japan Society for Occupational Health ; Group 2A (Polychlorinated biphenyl) ・LARC ; Group 2B ・ACGIH ; A3 ・Japan Society for Occupational Health ; Group 2B (1,1,1-trichloro-2,2-bis [4-chlorophenyl] ethane) ・ACGIH ; A3 ((1α, 2α, 3β, 4α, 5α, 6β) - hexachlorocyclohexane)

12. Ecological Information

Polychlorinated biphenyl

・This material is considered to have neither degradation by microorganisms nor bioconcentration and bioaccumulation effect in fish and shellfish, and low degradability and high bioconcentration property in fish and shellfish. (CSCL existing inspection)

・Degradability:13%(BY BOD)

・Bioacumulation properties（multiplying factor）:carp 1,120～10,300（6.6μg/L)
carp 600～160,00（2.2μg/L)

・Fish toxicity:Oryzias latipes LC50/48H:2.2mg/L

1,1,1-trichloro-2,2-bis [4-chlorophenyl] ethane

・This material is considered to have neither degradation by microorganisms nor bioconcentration and bioacumulation effect in fish and shellfish, and low degradability and high bioconcentration property in fish and shellfish. (CSCL existing inspection)

・Degradability:0 %(BY BOD)

・Bioacumulation properties（multiplying factor）:carp 5,100～24,400（1 μg/L)
carp 6,080～25,900（0.1 μg/L)

・Fish toxicity:Oryzias latipes LC50/48H:33.5 μg/L

(1α, 2α, 3β, 4α, 5α, 6β)-hexachlorocyclohexane

・This substance is considered to have no biodegradability with microorganisms. Also, in the bodies of fish and shellfish, it has low degradability, so is likely to be concentrated and accumulated (based on the existing inspection by the Chemical Substances Control Law).

13. Disposal Considerations

Residual Waste	:	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.
Contaminated Container and Package	:	Dispose of this CRM in accordance with applicable legislation and local government ordinance. Entrust disposal of the containers and packages to a professional waste disposal company licensed by the prefectural governor.

14. Transport Information

UN Number	:	Not applicable
UN Classification	:	-
Shipping Name	:	-
Packing Group		-
ICAO/IATA		Not applicable
Marine Pollutant	:	Specified
Precautions	:	Transport this reference material carefully while keeping it away from direct sunlight and preventing accidental release due to falling, overturning, etc.

15. Regulatory Information

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

・Class 1 Specified Chemical Substances (No. 1, 7, 22)

◇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.