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
Person in Charge	:	Certified Reference Material Staff
Telephone No.	:	+81-29-861-4059
Emergency Contact	:	Same as above
		Creation date : March 21, 2025
		Revised on : -
		Arrangement number : 8152003
Identity of Substance/Mixture	:	Certified reference material NMIJ CRM 8152-b(02) Polyvinyl Chloride (for Phthalate Esters Analysis)
Recommended Use of the Chemical and Restriction on Use	:	This reference material can be used for analysis instruments or measurement accuracy control and for the validation of measurement methods in the analysis of phthalate esters in PVC resins. This material shall not be used for purposes other than testing and research.

2. Hazards Identification

GHS classification : Acute toxicity (oral) : Classification 4
Acute toxicity (dermal) : Classification 4

GHS-labeling element :

Signal word : Warning

Hazard and toxicity information : Harmful if swallowed.
Harmful in contact with skin.

Cautionary statement : [Safety Measures]
Do not handle until all the safety instructions are read and understood.
Obtain the instructions manual prior to use.
Do not use for purposes other than testing and research.
Wash hands thoroughly after handling.
Do not eat, drink, or smoke when using this product.
Wear protective gloves, protective glasses, and protective shield.
[Emergency Measures]
Ingestion: Rinse mouth. If the person feels sick, contact a physician.
Skin contact: Wash with plenty of water. If any abnormal state is

identified, seek medical attention.
Take off the contaminated clothing and wash before reuse.
[Storage]
Store in a clean, light-shielded place between 15°C and 35°C. Do not allow this standard to come in contact with other plastics, such as bottle caps, horizontally for long periods of time.
[Disposal]
Follow the related regulations and ordinances of the local government.
Use a waste-treatment firm certified by prefectural governor.

Classification is impossible or not applicable for hazards not mentioned above.

3. Composition/Information on Ingredients

Substance or mixture : Mixture

Ingredient 1

Chemical name	:	Polyvinyl chloride
Synonym	:	PVC
Chemical formula	:	$(C_2H_3Cl)x$
Molecular weight	:	-
CAS number	:	9002-86-2
Content	:	Approximately 79 %
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (6)-66 Industrial Safety and Health Act : Published

Ingredient 2

Chemical name	:	Acetyl tributyl citrate
Synonym	:	ATBC
Chemical formula	:	$C_{20}0H_{34}O_8$
Molecular weight	:	402.48
CAS number	:	77-90-7
Content	:	Approximately 12 %
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (2)-1327 Industrial Safety and Health Act : Published

Other ingredients (additive) : Approximately 9 %
Content : The following materials are contained.
Zinc stearate, calcium stearate composite (stabilizer): approximately 5.6 %,
Epoxidized soybean oil (heat stabilizing auxiliary agent): approximately 1.6 %,
Alkyl methacrylate, alkyl acrylate--styrene copolymer (processing auxiliary agent): approximately 0.8 %,

Stearate of adipic acid dipentaerythritol polymer (lubricant): approximately 0.4 %,
Dimethyl phthalate: approximately 0.1 %,
Diethyl phthalate: approximately 0.1 %,
Di(n-butyl) phthalate: approximately 0.1 %,
Di(i-butyl) phthalate: approximately 0.1 %,
Dicyclohexyl phthalate: approximately 0.1 %,
Di(n-octyl) phthalate: approximately 0.1 %,
Di(2-ethylhexyl) phthalate: approximately 0.1 %,
Butylbenzyl phthalate: approximately 0.1 %,
Di(2-ethylhexyl) adipic acid: approximately 0.1 %.

4. First-aid Measures

Eye contact	:	Wash thoroughly with clean water. Seek medical attention.
Skin contact	:	Wash with plenty of water. If any abnormal state is identified, seek medical attention. Take off the contaminated clothing and wash before reuse.
Inhalation	:	Move to a place with fresh air, rest and keep warm. Seek medical attention.
Ingestion	:	Rinse the mouth. If the person feels sick, contact a physician.
Estimated acute and late symptom	:	-
Most important symptoms and effects	:	-
Protection of first-aiders	:	Use personal protective equipment.

5. Fire-fighting Measures

Extinguishing media	:	Extinguish fire as the first-aid firefighting by using powder, carbon dioxide, and powder fire extinguishing equipment/extinguisher. Foam extinguishing media for water-soluble liquid (alcohol-resistant foam), carbon dioxide, powder, sand, and water.
Specific hazards with regard to fire-fighting	:	Toxic gas may be generated in the event of combustion.
Specific methods of fire-fighting	:	Eliminate the origin of fire and put the fire out with extinguishing media. If possible, move containers to a safe place. If not, cool the peripheral areas with water spray.
Protection for firefighters	:	Work from the windward side to prevent the inhalation of toxic gas. Use fire-prevention clothing, fireproof clothing, fire-protection clothing, respirator, circulating oxygen breathing apparatus, rubber gloves, rubber boots, or other appropriate protective equipment.

6. Accidental Release Measure

Personal precautions	:	Promptly remove all potential ignition sources from peripheral areas. In case of ignition, prepare the equipment for firefighting.
Protective equipment and emergency measures	:	When accidental release takes place indoors, thoroughly clear the air until the emergency measures are complete. Before the operation, wear appropriate protective equipment to protect skin from droplets and to prevent inhalation of dust and gas.
Environmental precautions	:	Prevent the released product from being drained into a river or other area that might cause environmental damage. Prevent the polluted discharge from being drained into the environment without being processed properly.
Recovery and neutralization	:	Collect the leaked product in an empty container. Then, wash and clean the spilled area with plenty of water.
Prevention of secondary accidents	:	Surround the area with a rope, etc., to prevent unauthorized people from entering the area. Work from the windward side and evacuate people to the leeward side.

7. Handling and Storage

Handling

Technical measures	:	Avoid contact with strong oxidants.
Local ventilation and general ventilation	:	In case steam or mist is generated, seal the source and provide local exhaust ventilation.
Precautions for safe handling	:	Avoid rough handling such as dropping, shocking, dragging, or otherwise agitating the container. Seal the container after use. Wash hands, face, and other necessary parts thoroughly, and gargle after handling. Do not eat, drink, or smoke in places other than the designated areas. Do not bring gloves and other contaminated protective equipment into the break area. Only authorized people should be allowed in the handling area. Wear appropriate protective equipment to prevent inhalation, or contact with eyes, skin, or clothing. When handling indoors, provide local exhaust ventilation.

Storage

Appropriate storage conditions	:	Store in a clean, light-shielded place between 15°C and 35°C. Do not allow this standard to come in contact with other plastics, such as bottle caps, horizontally for long periods of time.
Safe packaging materials	:	Glass

8. Exposure Controls/Personal Protection

Standard control concentration
N/A
Threshold limit values (material name) Polyvinyl chloride
・ACGIH TLV-TWA : 1 mg/m^3 respirable fraction
・Value recommended by Japanese Society of Occupational Health : N/A
・OSHA PEL TWA : N/A
Threshold limit values (material name) Acetyl tributyl citrate (ATBC)
・ACGIH TLV-TWA : N/A
・Value recommended by Japanese Society of Occupational Health : N/A
・OSHA PEL TWA : N/A
Engineering controls
Ventilation and emission : Local ventilation equipment or general ventilation equipment
Safety management and gas detection : Measuring device, detection tube
Storage precautions : Ventilate along the floor surface and seal the container. Keep away from combustible/reducing materials and strong oxidants.
Protective equipment
Respiratory protection : Dust mask
Hand protection : Protective gloves
Eye protection : Protective glasses with side wall (goggle type or full-face protective glasses as needed)
Skin and body protection : Protective clothing
Hygiene measures
Handle in accordance with the industrial hygiene and safety standards.

9. Physical and Chemical Properties

・Appearance, etc. : Pellet
・Color : Grayish 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 : Insoluble in water. Although it is insoluble in most

organic solvents, it is soluble in cyclohexanone, tetrahydrofuran, and nitrobenzene.

- *n*-Octanol/water partition coefficient (Log Po/w) : No data
- Auto-ignition temperature : No data

10. Stability and Reactivity

Stability	:	Stable under normal conditions.
Reactivity	:	Stable under normal conditions.
Possibility of hazardous reaction	:	No data
Conditions to avoid	:	Sunlight and high temperature
Incompatible materials	:	No data
Hazardous decomposition products	:	Carbon monoxide, carbon dioxide, halide

11. Toxicological Information

Acute toxicity (oral)	Polyvinyl chloride: LD_{50} (rat) 2000 mg/kg or greater Classified as Classification 4 according to LD_{50} (rat) 22.5 ml/kg of the component contained in the additive (epoxidized soybean oil: approximately 1.6%).
Acute toxicity (dermal)	Classified as Classification 4 according to LD_{50} (rabbit) 20 ml/kg of the component contained in the additive (epoxidized soybean oil: approximately 1.6%).

* As there is no information for the compound, the toxicological information is created based on the information on raw materials.
This product is stable under normal conditions and there is no risk of elution of hazardous additive components, etc.; however, use the product with sufficient safety measures in case it is handled under special conditions such as use with heat.

12. Ecological Information

Ecotoxicity	:	No data
Persistence and Degradability	:	No data
Bioaccumulative Potential	:	No data
Mobility in soil	:	No data
Influence to the ozone layer	:	No data

13. Disposal Considerations

Residues : Incinerate in an incinerator with exhaust gas processor (800 °C or over) or landfill as non-hazardous waste.
Follow the related regulations and ordinances of the local

		government for disposal. If it is impossible to dispose by the procedures described above, use a waste-treatment vendor certified by prefectural governor.
Contaminated containers and packaging	:	To dispose of an empty container, completely remove the contents.

14. Transport Information

UN Dangerous Goods Number	:	Not applicable
UN classification	:	-
Product name	:	-
Packing Group	:	-
ICAO/IATA	:	Not applicable
Marine Pollutant	:	Not applicable
Matters to be attended to	:	Avoid direct sunlight. Prevent leakage and fires caused by overturning, falling, etc. and transport with caution.

15. Regulatory Information

Industrial Safety and Health Law

・Article 57-2 (Enforcement Order: Article 18-2)　Hazardous substance whose name, etc. must be notified No.324、No.478、No.479

◇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

Other

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.