



Material Safety Data Sheet

1. Product Name and Company Identification

Takefu Plant, Rengo Co., Ltd.
39-1-2, Kamimakara-Cho Echizen-Shi,
Fukui Prefecture

TEL 0778-27-7022

FAX 0778-27-7026

Emergency phone number: Ditto

Prepared on July 25, 2016

Revised on August 1, 2017

Product Name: **WASAACE (PS90)**

2. Hazards Identification

GHS Classification

Physicochemical hazards:

Explosives	: Not classified
Flammable / flammable gases	: No classification
Flammable / flammable aerosol	: No classification
Combustion support / oxidizing Gases	: No classification
Gases	: No classification
Flammable liquids	: No classification
Flammable solids	: Not classified
Self-reactive chemicals	: Not classified
Spontaneous combustible liquids	: No classification
Spontaneous combustible solids	: Not classified
Self-heating chemicals	: Not classified
Chemicals which in contact with water emits flammable gases	: Not classified
Oxidizing liquids	: No classification
Oxidizing solids	: Not classified
Organic peroxide	: Not classified
Metal corrosive substances	: Not classified

Toxicological health effects:

Acute toxicity-oral	: Class 4
Acute toxicity-skin	: Class 2
Acute toxicity-inhalation (gas)	: No classification
Acute toxicity-inhalation (vapor)	: Class 1
Acute toxicity-inhalation (dust / mist)	: Not classified
Skin corrosive / irritation	: Class 2
Serious eyes damage / eyes irritation	: Not classified
Respiratory organs sensitization	: Not classified
Skin sensitization	: Class 1
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specified target internal organs toxicity (single exposure)	: Class 2
Specified target internal organs toxicity (repeat exposure)	: Class 2
Absorption respiratory organs toxicity	: Not classified

Toxicological environment effects:

Aquatic environmental acute toxicity : Class 1
 Aquatic environmental chronic toxicity : Class 1

GHS label elements:

Pictograms / Symbols :



Signal word : - Danger

Hazardous information : - Ingestion is hazardous
 - Skin irritation
 - May cause allergy skin reaction
 - Inhalation is lethal
 - May cause irritation to respiratory organs
 - Highly strong toxicity to aquatic organisms
 - Highly strong toxicity to aquatic organisms due to long-term influences

Precautionary statement:

Safety countermeasures : - Obtain instructions for handling before use.
 - Before handling, read and understand the safety attentions.
 - Wash hands well after handling.
 - Do not take food, drinks or smoking while handling.
 - Do not inhale vapors.
 - Prevent release into the environment.
 - Wear protective gloves, glasses and masks.
 - Use the tools which produce no sparks.
 - Keep away from ignition sources such as heat, sparks, open flame and high temperature.
 - Hermetically close containers.
 - Do not contact leaked contents with eyes, skin or clothing.

First aid measures : - Skin irritation or rash: receive diagnosis and treatment by a doctor.
 - Exposure or discomfort: get medical attention.
 - Discomfort: get medical attention.
 - Use designated extinguishing media.
 - Ingestion of leaked content: get medical attention. Gargle.
 - Contact of leaked content to skin or hair: immediately take off all cloths. Wash the skin with running water or shower. For irritation, consult a doctor.
 - Leak: recover leaked content and ventilate sufficiently

Storage : - Store in a cool and well-ventilated place.

Disposal : - Consign disposal of contents and containers to waste disposal contractors licensed by prefectural governors.

3. Composition / Information on Ingredients

Single substance or compound : Compound
 Chemical name or generic name : No information
 Chemical characteristics (chemical formula, etc.) : No information
 Ingredients:

No.	Ingredient	CAS No.	Chemical formula	Content rate (%)
1	Allyl Isothiocyanate	57-06-7	C ₄ H ₅ N S	37.98
2	Paraffin wax	8002-74-2	C _n H _{2n+2} (n=22 ~ 53)	10.80
3	Resin	—	—	8.64
4	Dibutylhydroxytoluene	128-37-0	C ₁₅ H ₂₄ O	0.76
5	Cellulose beads	9004-34-6	(C ₆ H ₁₀ O ₅) _n	21.59
6	Bag	—	—	20.24

No.	The Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances Reference number gazetted list in Japan	Industrial Safety and Health Law Reference number gazetted list in Japan	Industrial Safety and Health Law Notifiable substances	Act on confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act)	Poisonous and Deleterious Substances Control Law
1	(2)-1689	(2)-1689	—	—	—
2	(8)-414	(8)-414	9-170	—	—
3	—	—	—	—	—
4	(3)-540, (9)-1805	(3)-540, (9)-1805	262	—	—
5	—	11-(4)-181	—	—	—
6	—	—	—	—	—

Poisonous and Deleterious Substances Control Law: - not applicable (N/A)

4. First-Aid Measures

Inhalation : - If getting sick due to inhalation of vapor, gas, etc., remove the victim to fresh air and rest in an easy-to breathe position. If getting sick, seek medical attention.

Skin contact : - If the appearance changes, irritation causes pain and the victim gets sick, get medical attention.
 - In the case of skin contact with spilled substance, wash sufficiently with plenty of water, soap or detergent for skin.
 - In the case of clothing contact with spilled substance, immediately take off all the contaminated cloths.

Eye Contact : - In the case of eye contact with spilled substance, Continue to rinse the eyes for longer than 15 minutes. If contact lenses are worn and easily detached, remove the lenses. Thoroughly wash back of the eyelids, too.
 - In the case of eye contact with spilled substance, get medical attention as soon as possible.

Ingestion : - If spilled substance is mistakenly ingested, drink plenty of water, rest and immediately get medical attention.
 - If spilled substance is mistakenly ingested, pay attention to prevent flow of vomit into the trachea.
 - If spilled substance is mistakenly ingested, do not force to vomit without a physician instruction.

Protection for first aids : - Wear appropriate protective equipments (protective glasses, protective mask, protective gloves, etc.).
 - Ventilate.

5. Fire fighting measures

Extinguishing media : - Dry extinguishers, foam extinguisher, carbon dioxide, dry sand, etc.

Specific method of fire fighting, protection for firefighters:

- Wear appropriate protective equipments (heat-resistant gloves, protective glasses, protective mask, etc.).
 - Promptly remove combustible articles in the surrounding.
 - Use designated extinguishing media.
 - Firefighters should battle the fires from the windward side.
 - Keep out the surrounding not to move those other than the persons concerned close and thereby to prevent second disaster.
 - Irritating, corrosive and toxic gases may develop during fire.
 - Move vessels, containers, etc. from the fire area if there is no danger.
-

6. Accidental Release Measures

Personal precautions, protective equipments and emergency measures:

- Wear appropriate protective equipments (glove, protective mask, apron, goggle, etc.)
- Keep out the surrounding not to move those other than the persons concerned close and thereby to prevent second disaster.
- Promptly remove surrounding ignition source, high temperature-generating elements and combustible materials.
- Place appropriate extinguishers in preparation for fire.

Environmental precautions, methods and equipments of containment and clarification:

- Pay attention not to cause influences on the environment due to release in the rivers, etc.
 - Dispose of soiled matter, waste, etc. according to related regulations.
 - Recover spilled substance in hermetically sealed containers and move them to safe places.
 - Recover using scoops, waste cloth, etc. Decrease odor by banking, etc. against massive release. Be careful that washing with water, etc. may cause flow in river followed by environmental contamination.
 - Recover using the tools causing no sparks against impulsion and static electricity.
-

7. Handling and storage

Handling:

Technical measures : - Handle in well-ventilated places.

- Wear protective equipments to avoid contact to skin, mucosa, clothes and eyes.
- After handling, wash hands and face thoroughly and do not bring contaminated protective equipments such as gloves into rest place.
- Since active ingredient in this product has strong irritable odor and vapor may cause irritation to eyes, nose, etc., do not move the face close on opening package and handling.
- Ban use of fire, sparks and high-temperature articles.
- Use spark-arresting tools.
- Use anti-static working wears and shoes during operation.
- Do not take out the content by breaking sachets.

Local exhaust ventilation / general ventilation:

- Because of combustible solid, avoid approximation of sparks and fire and handle in a well-ventilated place.

- Precautions : - Prevent odorization from palettes and the other stored goods and prevent contamination with poisons.
 - Install the apparatuses for antistatic measures and use explosion-proof electric equipment (Increased safety type).
- Storage:
- Technical measures : - Avoid direct sunlight.
 - Store in the place away from fire and heat source.
- Storage conditions : - Avoid approximation of sparks and fire because of combustibility.
 - Store in hermetically closed container, and in a cool dark place where no direct sunlight reaches.
 Avoid contact with water, chemicals, etc.
-

8. Exposure controls / personal protection

- Protective equipment : - Provide exhaust ventilation and avoid retention of vapor.
 - Use the equipment in the place away from high temperature and ignition source.
- Protective equipment:
- Respiratory protection : - Mask
- Hand protection : - Wear the gloves made of organic solvent- and chemicals-impermeable materials.
- Eye protection : - Wear protective glasses during handling.
- Skin and body protection: - Wear the cloths which do not directly expose the skin during handling.
 Preferably they are made of chemicals-impermeable materials
- Others : - Wear current-carrying shoes to prevent occurrence of static electricity.
-

9. Physical and chemical properties

- Appearance
- Physical state : Solid
- Color : White (content is white ~ pale yellow)
- Odor : Mustard-like irritable odor
 Characteristically, irritable aroma
- pH : No information
- Melting point / freezing point : No information
- Boiling point, initial boiling point : No information
- Boiling range : No information
- Flash point : No information
- Auto-ignition temperature : No information
- (Ignition point)
- Upper limit or lower limit of Inflammability limit or explosion limit range : No information
- Vapor pressure : No information
- Vapor density : No information
- Specific gravity (relative density) : No information
- Solubility in water : No information
- Solubility in water : No information
- Solubility in solvent : No information
- Solubility in solvent : No information
- Octanol / water partition coefficient : No information
- Decomposition temperature : No information
-

10. Stability and reactivity

- Stability : - Allyl isothiocyanate is volatile.
(Potential hazards) - At high temperature, Allyl isothiocyanate is decomposed and discolors.
- Radical reaction may be caused by heating, combustion or contact with acid or alkali.
- Conditions to avoid : - Avoid approximation to fire because of flammability.
- Avoid heating, combustion or contact with acid or alkali.
- Reaction hazardous substances : - Strong oxidizing substances
Hazardous decomposition product : - No noxious fumes occur by self-decomposition.
-

11. Toxicological information

- Acute toxicity : Allyl isothiocyanate LD50 (oral) rat 339 mg/kg [1]
LD50 (skin) rabbit 88 mg/kg [1]
Paraffin wax LD50 (oral) rat > 5,000 mg/kg [2]
(skin) rabbit > 3,600 mg/kg [2]
Dibutylhydroxytoluene LD50 (oral) rat > 890 mg/kg [3]
(oral) mouse > 1,040 mg/kg [3]
Cellulose beads LD50 (oral) mouse ≥ 5,000 mg/kg [2]
- Skin corrosive / irritation : Product
Allyl Isothiocyanate Class 2
Paraffin wax No class
Dibutylhydroxytoluene Not classified
- Serious eye damages /eye irritation:
Product Not classified
Paraffin wax Class 2 B
- Skin sensitivity : Allyl Isothiocyanate Class 1
- Mutagenicity (Germ cell mutagenicity):
Allyl Isothiocyanate No class
Dibutylhydroxytoluene No class
- Carcinogenicity : Allyl Isothiocyanate No class
Dibutylhydroxytoluene No class
- Reproduction toxicity : Allyl isothiocyanate Not classified
- Specified target organs / systemic toxicity-single exposure:
Allyl isothiocyanate Class 3 (irritation to respiratory tract)
Paraffin wax Class 3 (irritation to respiratory tract)
- Specified target organs / systemic toxicity-repeat exposure:
Allyl isothiocyanate Not classified
-

12. Ecological information

- Since leak, disposal, etc. may have influences on the environment, pay attention to handling.

Aquatic environmental toxicity

- | | | | |
|---|------------|---------------------------|----------------|
| Allyl isothiocyanate | LC50 (96H) | Fish (Killifish) | 0.077 mg/L [1] |
| Dibutylhydroxytoluene | LC50 (48H) | Fish (Japanese killifish) | 5.0 mg/L [5] |
| Aquatic environmental toxicity (Acute toxicity) | | : - Allyl isothiocyanate | Class 1 |
| Aquatic environmental toxicity (Chronic toxicity) | | : - Allyl isothiocyanate | Class 1 |
-

13. Disposal considerations

- Residues : - Do not discharge washings for containers, apparatuses, etc. on the ground or into drains.
- Dispose of or consign the waste produced by effluent treatment or incineration according to the laws on disposal of waste and cleaning.
- Contaminated containers and packages:
- Consign disposal of contaminated containers and packages to the contractors licensed by governors.
- Empty containers must be disposed after totally removing the content.

14. Transport information

- Check the containers and loading to prevent leakage, turnover, fall, damage and load shift.
 - Conform to the description in Precautions for Handling and Storage.
- Land transport Regulatory : - Follow the transport method defined by the Fire Defense Law.
Sea transport Regulatory : - Follow the provisions of ship safety law
Air transport Regulatory : - Follow the provisions of aviation law

15. Regulatory Information

- Fire Defense Law - Designated combustible materials, combustible solids
Law concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances - Priority assessment chemical substances
Dibutylhydroxytoluene (0.4%)
- Industrial Safety and Health Act - Article 57-2 Notifiable substances
Paraffin wax (3.3%)
Dibutylhydroxytoluene (0.4%)

16. Other information

- References : [1] NITE GHS Classification results
[2] MSDS by Material manufacturers
[3] OECD SIDS Initial Assessment Report
[4] IPCS INCHEM EHCs: Environmental Health Criteria Monographs
[5] CERL : Chemical Safety (Hazard) Data Sheet
- Others : - The information contained herein is based on all the information and data that we can obtain as of the data issued. However, concerning the data and assessment contained herein we do not give guarantee completeness or accuracy of information. All remarks and precautions are premised on ordinary handling and it is user's responsibility to take enough considerations in case of particular use.
- References : Material manufacturer's MSDS
-