Date of issue for the 1st edition : 23/09/2020

Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product name :

Product name: MICRO TITANIUM DIOXIDE MT-N1, MT-01, MTX-01, MT-100T, MT-100TV, MT-100Z, MTX-100Z, MT-500T, MT-700Z

Product code (SDS NO): MT_Ste_Al_E9-1

Product class : Titanium Dioxide

Recommended use and restrictions on use

Recommended use : Filler

Details of the supplier of the safety data sheet

Name of supplier : TAYCA CORPORATION

Address : 4-11-6, TANIMACHI, CHUO-KU, OSAKA, JAPAN

Division : SALES DEPARTMENT

Phone : +81-6-6943-6453

FAX : +81-6-6943-6498

Address : 3-8-2, NIHONBASHI, CHUO-KU, TOKYO, JAPAN

Division : TOKYO BRANCH

Phone : +81-3-3275-0815

FAX : +81-3-3275-0859

Emergency phone : OKAYAMA FACTORY +81-86-946-8311

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

Not applicable to classification criteria

3. Composition/information on ingredients

Mixture/Substance selection:

Mixture

Ingredient name	Content (%)	CAS No.	Chemicals No, Japan
Titanium dioxide	65 - 95	13463-67-7	1-558
Aluminum hydroxide	0.1 - 20	21645-51-2	1-17
Stearic acid or Fatty acids, C16-18	0.1 - 25	57-11-4 or 67701-03-5	2-608

This grade is a nano-object having a length scale of approximately one to one hundred nanometers in any dimension, or a nanostructured material which is consist of nano-object.

4. First-aid measures

Descriptions of first-aid measures

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

This product is non-flammable.

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Fire may produce dust and/ or fumes.

Advice for firefighters

Specific fire-fighting measures

If it is not dangerous, move the container from the fire area.

Special protective equipment and precautions for fire-fighters

Wear appropriate protective equipment and fireproof clothing.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

Wear proper protective equipment.

Environmental precautions

Avoid release to the environment.

Avoid raising dust.

Methods and materials for containment and cleaning up

Collect spillage.

Preventive measures for secondary accident

Collect spillage.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/mist.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with eyes.

Safety Measures

Do not handle until all safety precautions have been read and understood.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Wash hands et al thoroughly after handling.

Do not eat, drink or smoke when using this product.

Any incompatibilities data is not available.

Storage

Conditions for safe storage

Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Avoid high stacking

Container and packaging materials for safe handling

Put into closed-type packaging or container (There are no limit for packaging and container).

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8. Exposure controls/personal protection

Control parameters

Adopted value

(Titanium dioxide)
ACGIH(1992) TWA: 10mg/m3 (LRT irr)
(Aluminum hydroxide)
ACGIH(2007) TWA: (Insoluble)1mg/m3(R) (Pneumoconiosis; LRT irr; neurotoxicity)
(Stearic acid or Fatty acids, C16-18)
ACGIH(2016) TWA: 10mg/m3(I), 3mg/m3(R) (LRT irr)

OSHA-PEL

(Titanium dioxide)
TWA: 15mg/m3

NIOSH-REL

(Titanium dioxide)
Ca(ultrafine particles); TWA: 2.4 mg/m3 (fine);
TWA: 0.3 mg/m3 (ultrafine);
See Appendix A; See Appendix C

Exposure controls

Appropriate engineering controls

Exhaust/ventilator should be available.
Eye wash station should be available.
Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

Skin and body protection

Wear protective clothing.

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9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Powder/granule
Color: White
Odor: Slight characteristic odor
Odor threshold data is not available.
Melting point/Freezing point data is not available.
Boiling point or initial boiling point data is not available.
Boiling range data is not available.
Flammability (gases, liquids and solids) data is not available.
Lower and upper explosion limit/flammability limit data is not available.
Flash point data is not available.

Auto-ignition temperature data is not available.
Decomposition temperature data is not available.
Self-Accelerating Decomposition Temperature/SADT data is not available.
pH: Not applicable
Dynamic viscosity data is not available.
Kinematic viscosity data is not available.
Solubility:
Solubility in water: Insoluble
Solubility in solvent data is not available.
Solubility as solvent data is not available.
n-Octanol/water partition coefficient data is not available.
Vapor pressure data is not available.
Vapor density data is not available.
VOC data is not available.
Evaporation rate data is not available.
Density and/or relative density data is not available.
Relative vapor density (Air=1) data is not available.
Relative density of the Vapor/air - mixture at 20℃ (Air = 1) data is not available.
Critical temperature data is not available.
No Particle characteristics data is not available.
Other information
(Titanium dioxide(IV))
Melting point: 1820-1855℃
(Titanium dioxide(IV))
Specific gravity/Density: 3.5 - 4.2g/cm3
(Titanium dioxide(IV))
Solubility in water: insoluble

10. Stability and Reactivity

Reactivity
Stable under normal storage/handling conditions.
Chemical stability
Stable under normal storage/handling conditions.
Possibility of hazardous reactions
No data.
Conditions to avoid
Direct sunlight, high temperature.
Incompatible materials
No data.
Hazardous decomposition products
No data.

11. Toxicological Information

Information on toxicological effects
Acute toxicity
Acute toxicity (Oral)
[base data and／or Rationale for the classification]
(Titanium dioxide)
Not classified:
Rat LD50 > 2,000 mg/kg, > 5,000 mg/kg (SIDS (2015)).
Acute toxicity (Dermal)
[base data and／or Rationale for the classification]

(Titanium dioxide)
Not classified:
Hamster LD50 > 10,000 mg/kg (HSDB (Access on May 2016), Environmental Risk Assessment for Chemical Substances Vol. 8 (Ministry of the Environment, 2010)).

Acute toxicity (Inhalation)
[base data and／or Rationale for the classification]
(Titanium dioxide)
Not classified:
(Dusts) Rat LC5 > 5.09 mg/L (SIDS (2015)).

Irritant properties

Skin corrosion/irritation
[base data and／or Rationale for the classification]
(Titanium dioxide)
Not classified:
From descriptions (SIDS (2015)) of slight or no irritation in skin irritation tests using rabbits, it was classified as Not classified.

Serious eye damage/irritation
[base data and／or Rationale for the classification]
(Titanium dioxide)
Classification not possible:
There is a report that in an eye irritation test (OECD TG 405) using rabbits, mild conjunctival redness was observed in 24 hours after the application, but disappeared within 48 hours,etc (SIDS (2015)). The irritation observed in these tests may be thought to be due to physical stimulation, however, the particle shape could not be confirmed.

Sensitization

Respiratory sensitization
[base data and／or Rationale for the classification]
(Titanium dioxide)
Classification not possible:
Lack of data.

Skin sensitization
[base data and／or Rationale for the classification]
(Titanium dioxide)
Not classified:
Both a skin sensitization test using the guinea pigs (Buehler method, OECD TG 406) and a skin sensitization test using mice (LLNA method, OECD TG 429) were negative, and it was judged that this substance doesn't have skin sensitizing potential (SIDS (2015)).

Germ cell mutagenicity
[base data and／or Rationale for the classification]
(Titanium dioxide)
Classification not possible:
As for in vivo, it was reported that micronucleus tests using peripheral erythrocytes or bone marrow cells of mice were negative, an hprt gene mutation assay using alveolar cells of rats was positive, a chromosomal aberration test using mouse bone marrow cells and a DNA damage test in rat lungs were negative (SIDS (2015), National Institute of Advanced Industrial Science and Technology (2011), DFGOT (2014), Environmental Risk Assessment for Chemical Substances Vol. 8 (Ministry of the Environment, 2010), IARC 93 (2010)). As for in vitro, negative results were reported in all of bacterial reverse mutation tests, micronucleus tests, chromosome aberration tests, and mouse lymphoma assays using cultured mammalian cells (SIDS (2015), OEL Documentations (Japan Society For Occupational Health (JSOH), 2013), National Institute of Advanced Industrial Science and Technology (2011), IARC 93 (2010), Environmental Risk Assessment for Chemical Substances Vol. 8 (Ministry of the Environment, 2010), DFGOT (2014)). In addition, it is evaluated in SIDS (2015) that it is not possible to conclude on the genotoxicity of this substance because positive in vivo

findings are not by standard tests.

Carcinogenicity

[base data and／or Rationale for the classification]

(Titanium dioxide)

Classification not possible:

Classified as IARC Group 2B. However, in lung inhalation exposure testing on rats, mice and hamsters, tumor incidence was only observed with high-dose administration to rats. Furthermore, a similar trend is seen in rats with inert poorly soluble particles and carcinogenicity is thought to be influenced by the action of the rat-specific immune system. A causal relationship between titanium dioxide and carcinogenicity has not been displayed in human epidemiological population studies conducted in Europe and North America.

(Titanium dioxide)

IARC-Gr.2B : Possibly carcinogenic to humans

(Aluminum hydroxide)

ACGIH-A4(2007) : Not Classifiable as a Human Carcinogen

(Stearic acid or Fatty acids, C16-18)

ACGIH-A4(2016) : Not Classifiable as a Human Carcinogen

(Titanium dioxide)

ACGIH-A4(1992) : Not Classifiable as a Human Carcinogen

Reproductive toxicity

[base data and／or Rationale for the classification]

(Titanium dioxide)

Classification not possible:

In a reproduction/developmental toxicity screening test (OECD TG 421) using rats, no adverse effects on fertility of parental animals, survival and development up to 4 days after delivery of offspring were observed even up to at a dose of 1,000 mg/kg/day administered by gavage (SIDS (2015)). However, because this test is a screening test, it was not possible to classify this substance as Not classified only from this result, and there is no other data available for classification.

Teratogenic effects data is not available.

STOT

STOT-single exposure

Not classified or Classification not possible

[base data and／or Rationale for the classification]

(Titanium dioxide)

Classification not possible:

The oral lethal dose is >20,000 mg/kg (DFGOT (1991)) for rats. In humans, it is reported that ingestion of the substance is considered to be substantially non-toxic since the ingestion of 1 pound did not cause any adverse effects and the substance was excreted into the feces within 24-hour (ACGIH (2001)). The substance corresponds to Not classified with oral exposure, however, classification was not possible due to lack of data with other exposure routes.

STOT-repeated exposure

Not classified or Classification not possible

[base data and／or Rationale for the classification]

(Titanium dioxide)

Classification not possible:

In oral tests in rats and mice by feeding administration, no exposure-related effects were observed at a dose level of 25,000 ppm (1250 mg/kg/day). This dose level exceeds the upper limit of the guidance value range (NTP TR No. 97 (1979)). On the other hand, X-ray examination of the lungs of workers exposed to the substance for more than 20 years, revealed very few cases with pneumonconiotic changes which were not associated with the changes in lung function (DFGOT vol. 12 (1999)). Numerous epidemiological tests have mainly been directed at the question of whether titanium dioxide has fibrogenic effects. Most of

these results contradicted the causal relationship. There is insufficient evidence to show a clear association between the substance and pulmonary fibrosis (DFGOT vol. 12 (1999), ACGIH (2001), IARC vol. 47 (1989), PATTY (5th, 2001)). In a 2-year inhalation test in rats, no significant effects were observed at a dose level of 250 mg/m3 (5 days/week, 6 hour/day, dusts) which exceeds the upper limit of the guidance value range (IUCLID (2000)). But classification was not possible due to lack of data with dermal exposure.

Aspiration hazard

Not classified Classification not possible

[base data and/or Rationale for the classification]

(Titanium dioxide)

Classification not possible:

Lack of data.

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Hazardous to the aquatic environment (Acute)

[base data and／or Rationale for the classification]

(Titanium dioxide)

Not classified:

From 72-hour EL50 (growth rate) > 100 mg/L for algae (Pseudokirchneriella subcapitata), 48-hour EL50 > 100 mg/L for crustacea (Daphnia magna), and 96-hour LL50 > 100 mg/L for fish (Oryzias latipes) (all SIDS, 2015), it was classified as Not classified.

Hazardous to the aquatic environment (Long-term)

[base data and／or Rationale for the classification]

(Titanium dioxide)

Classification not possible:

Since no acute toxicity was reported at concentrations up to water solubility, it was classified as Classification not possible.

Water solubility

(Titanium dioxide)

none (ICSC, 2002)

(Aluminum hydroxide)

none (ICSC, 1998)

(Stearic acid or Fatty acids, C16-18)

none (ICSC, 1997)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

Bioaccumulative potential data is not available.

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment.

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

Not applicable to UN No., UN CLASS

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

Special precautions for user

Keep dry.

Protect from direct sunlight or rain.

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

US Federal Regulations

Chemicals listed in TSCA Inventory

Stearic acid or Fatty acids, C16-18; Titanium dioxide; Aluminum hydroxide

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (6th ed., 2015), UN Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN Classification, labelling and packaging of substances and mixtures (Table 3 ECNO6182012)
2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2020 TLVs and BEIs. (ACGIH)
http://monographs.iarc.fr/ENG/Classification/index.php
JIS Z 7253 : 2019
JIS Z 7252 : 2019
2019 Recommendation on TLVs (JSOH)
Supplier's data/information
NITE; http://www.safe.nite.go.jp/japan/sougou/view/SystemTop_jp.faces
JCDB ezADVANCE

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.
The data does not signify any warranty with regard to the products' properties.