

1. Chemical product and company identification

Substance name : TUBALL MATRIX 302
 Type of product : Nanoform embedded in a matrix
 Product group : Trade product

Company information

Supplier

東京都千代田区内神田 1-11-13

楠本化成株式会社

Japan:

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East/South East Asia : +65 3158 1074 (English, Hindi, Japanese, Korean, Malay, Mandarin) (Carechem 24)

2. Hazards identification

GHS classification

Physical hazards	Explosives	classification not possible
	Flammable gases	No classification
	Aerosol	classification not possible
	Oxidizing gases	No classification
	Gases under pressure	No classification
	Flammable liquids	No classification
	Flammable solids	classification not possible
	Self-reactive substances and mixtures	classification not possible
	Pyrophoric liquids	No classification
	Pyrophoric solids	classification not possible
	Self-heating substances and mixtures	classification not possible
	Substances and mixtures which in contact with water emit flammable gases	classification not possible
	Oxidizing liquids	No classification
	Oxidizing solids	classification not possible
	Organic peroxides	classification not possible
	Corrosive to metals	classification not possible
	Desensitized explosives	classification not possible
Health hazards	Acute toxicity (oral)	classification not possible
	Acute toxicity (dermal)	classification not possible
	Acute toxicity (inhalation:gas)	No classification
	Acute toxicity (inhalation:vapours)	No classification

	Acute toxicity (inhalation:dust/mist)	classification not possible
	Skin corrosion/irritation	classification not possible
	Serious eye damage/eye irritation	Category 2
	Respiratory sensitization	classification not possible
	Skin sensitization	classification not possible
	Germ cell mutagenicity	classification not possible
	Carcinogenicity	classification not possible
	Reproductive toxicity	classification not possible
	Specific target organ toxicity (single exposure)	classification not possible
	Specific target organ toxicity (repeated exposure)	classification not possible
	Aspiration hazard	classification not possible
	Hazardous to the aquatic environment, short-term (acute)	classification not possible
Environmental hazards	Hazardous to the aquatic environment, long-term (chronic)	classification not possible
	Hazardous to the ozone layer	classification not possible

Hazard
pictograms
(GHS JP)



Signal word (GHS JP) : Warning

Hazard statements (GHS JP) : Causes serious eye irritation. (H319)

Precautionary statements (GHS JP)

Prevention : Wash hands thoroughly after handling. (P264)
Wear protective gloves, protective clothing, eye protection.
(P280)

Response : IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue
rinsing. (P305+P351+P338)
If eye irritation persists: Get medical advice/attention.
(P337+P313)

3. Composition/information on ingredients

Distinction of substance or mixture : Mixture

Generic name : TUBALL MATRIX 302

Name	Concentration (%)	Formula	Reference number in the gazette list		CAS-No.
			CSCL No.	ISHL No.	
Alkylene glycol derivative	70	C ₃ H ₈ O ₂	-	-	Trade Secret
Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylen)bis(benzenesulphonate)	20	-	-	-	27344-41-8

Single wall carbon nanotubes*	10	C	–	–	N/A
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Comments : * Single wall carbon nanotubes TUBALL™.
Judging by the carbon content of the carbon nanotubes (CNTs), carbon nanotubes do not fall under the new chemical substance inventory of the Chemical Substances Control Law.

4. First aid measures

First aid measures ►

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
Get medical attention.

First-aid measures after skin contact : Take off immediately all contaminated clothing.
Wash contaminated clothing before reuse.
Wash with plenty of soap and water.
Wash skin with plenty of water.

First-aid measures after eye contact : 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.

First-aid measures after ingestion : Rinse mouth out with water.
Get medical advice/attention.

Most Important Symptoms/Effects

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after eye contact : Eye irritation.

Symptoms/effects after ingestion : Gastrointestinal complaints.
Diarrhea.

Notes to physician

Other medical advice or treatment : Treat symptomatically.

5. Fire fighting measures ►

Suitable extinguishing media : Powder, Alcohol-resistant foam, Water spray, Carbon dioxide (CO₂)

Unsuitable extinguishing media : Do not use a heavy water stream

Fire hazard : Under fire conditions, hazardous fumes will be present.

Hazardous decomposition products in case of fire : Toxic fumes may be released

Protection during firefighting : Do not attempt to take action without suitable protective equipment.
Full face mask.
Positive pressure self-contained breathing apparatus (SCBA).
Self-contained breathing apparatus.
Complete protective clothing.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

For non-emergency personnel

Protective equipment : Wear suitable protective clothing.

Emergency procedures : Ventilate spillage area.
Avoid contact with skin and eyes.

For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment.
For further information refer to section 8: "Exposure controls/personal protection".
- Emergency procedures : Provide adequate ventilation.
Evacuate area.
Avoid inhalation of vapours.

Environmental precautions

- Environmental precautions : Avoid release to the environment.

Methods and Equipment for Containment and Cleaning up ►

- Methods for cleaning up : Mechanically recover the product.
Clear up rapidly by scoop or vacuum.
Collect in closed container and remove to a safe place for disposal by burning.
- Other information : Dispose of materials or solid residues at an authorized site.

7. Handling and storage ►**Handling**

- Technical measures : No data available
- Precautions for safe handling : Ensure good ventilation of the work station.
Avoid contact with skin, eyes and clothing.
Carry out operations in the open/under local exhaust/ventilation or with respiratory protection.
Avoid breathing dust, fume.
To prevent thermal burns avoid contact with hot product.
Avoid contact with skin and eyes.
Wear personal protective equipment.
- Prevents handling of incompatible substances or mixtures : No data available
- Hygiene measures : Do not eat, drink or smoke when using this product.
Wash contaminated clothing before reuse.
Always wash hands after handling the product.

Storage

- Storage conditions : Store in dry, well-ventilated area.
Store at ambient temperature.
Keep container tightly closed.
Protect from sunlight.
Store in a well-ventilated place.
Keep cool.
- Material used in packaging/containers : No data available
- Heat and ignition sources : Keep away from open flames, hot surfaces and sources of ignition.
- Information on mixed storage : Store away from water (including sewage plant).
- Special rules on packaging : Keep container tightly closed.

8. Exposure controls / Personal protection equipment**Single wall carbon nanotubes****Japan – Occupational Exposure Limits**

Exposure limits (JSOH)	【Occupational exposure limits for dusts】 (Class 1) Respirable dust 0.5mg/m3 Total dust 2mg/m3
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Appropriate engineering controls : Ensure good ventilation of the work station

Protective equipment

Personal protective equipment : Gloves, Protective clothing, Safety glasses

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment, Selection of respiratory protection must be based on the result of the risk assessment

Hand protection : Wear suitable gloves

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves Reusable gloves	Use neoprene or rubber gloves		> 0.18		

Eye protection : Chemical goggles or safety glasses,

Skin and body protection : Protective clothing (with elasticated cuffs and closed neck),

Personal protective equipment symbol(s)



Environmental exposure controls : Avoid release to the environment.

9. Physical and chemical properties ►

Physical state	: Solid
Appearance	: Flakes, Pasty
Colour	: Black, White inclusions permissible
Odour	: Odourless
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability	: No data available
Vapour pressure	: No data available
Relative density	: No data available
Density	: 1.03 g/ml
Relative gas density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Explosive properties	: Not explosive.
Explosive limits (vol %)	: No data available
Oxidising properties	: Non oxidizing
Viscosity, kinematic	: No data available

10. Stability and reactivity

Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use.
Conditions to avoid	: None under recommended storage and handling conditions (see section 7).
Incompatible materials	: Strong oxidizing agents. Strong bases. Strong acids. Isocyanates.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Acute toxicity (oral)	: classification not possible
Acute toxicity (dermal)	: classification not possible
Acute toxicity (inhalation)	: Not applicable (gas) Not applicable (Vapour) classification not possible (dust, mist)

Alkylene glycol derivative	
LD50 oral rat	22500 mg/kg
LD50 dermal rabbit	20800 mg/kg
Disodium 2,2' -([1,1'-biphenyl]-4,4' diyldivinylene)bis(benzenesulphonate) (27344-41-8)	
LD50 oral rat	≈ 2000 mg/kg - OECD 401
LD50 dermal rat	> 2000 mg/kg - OECD 402

Skin corrosion/irritation	: classification not possible
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory sensitization	: classification not possible
Skin sensitization	: classification not possible
Germ cell mutagenicity	: classification not possible
Carcinogenicity	: classification not possible
Reproductive toxicity	: classification not possible

Single wall carbon nanotubes	
NOAEL (animal/female, F0/P)	no adverse effects seen at highest dose tested > 1000 mg/kg bw/day - OECD 422
NOAEL (animal, F1)	> 1000 mg/kg bw/day - for adverse effects on prenatal development (conceptus to birth) - OECD 422
NOAEL (animal, F1)	> 1000 mg/kg bw/day - for adverse effects on postnatal development (pup) - OECD 422

STOT-single exposure : classification not possible

STOT-repeated exposure : classification not possible

Single wall carbon nanotubes	
NOAEL (oral, rat, 90 days)	no adverse effects seen at highest dose tested > 1000 mg/kg bodyweight/day - OECD 422

Aspiration hazard : classification not possible

12. Ecological information

Ecotoxicity

Hazardous to the aquatic environment, short-term (acute)	: classification not possible
Hazardous to the aquatic environment, long-term (chronic)	: classification not possible

Alkylene glycol derivative	
LC50 fish - 96h	40613 mg/l Oncorhynchus mykiss (Rainbow trout)

Alkylene glycol derivative	
EC50 crustacea - 48h	18340 mg/l Ceriodaphnia dubia
EC50 algae - 96h	19000 mg/l Pseudokirchneriella subcapitata
NOEC chronic crustacea - 21 days	13020 mg/l Ceriodaphnia dubia - 7 days
Bioconcentration factor (BCF REACH)	0.09
Partition coefficient n-octanol/water (Log Pow)	-1.07
Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylene)bis(benzenesulphonate) (27344-41-8)	
LC50 fish - 96h	10 - 100 mg/l Brachydanio rerio (zebra-fish) - OECD 203 - ISO 7346; 84/499/EEC, C.1
EC50 algae - 72h	10 - 100 mg/l (Growth rate) Scenedesmus subspicatus - OECD 201
NOEC (chronic)	> 1 mg/l (Growth rate) Scenedesmus subspicatus - OECD 201
NOEC chronic crustacea - 21 days	> 1 mg/l Daphnia magna (Water flea) - OECD 211
Partition coefficient n-octanol/water (Log Pow)	-2.32 - OECD 107

Persistence and degradability

TUBALL MATRIX 302	
Persistence and degradability	No data available
Alkylene glycol derivative	
Persistence and degradability	Readily biodegradable.
Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylene)bis(benzenesulphonate) (27344-41-8)	
Persistence and degradability	Readily biodegradable.
Biochemical oxygen demand (BOD)	0 mg O ₂ /g substance - 5 days
Chemical oxygen demand (COD)	1.507 mg O ₂ /g substance
Biodegradation	> 70 % - OECD 301F
Single wall carbon nanotubes	
Not rapidly degradable	

Bioaccumulative potential

TUBALL MATRIX 302	
Bioaccumulative potential	No data available
Alkylene glycol derivative	
Bioconcentration factor (BCF REACH)	0.09
Partition coefficient n-octanol/water (Log Pow)	-1.07
Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylene)bis(benzenesulphonate) (27344-41-8)	
Partition coefficient n-octanol/water (Log Pow)	-2.32 - OECD 107

Mobility in soil

TUBALL MATRIX 302	
Mobility in soil	No data available
Alkylene glycol derivative	
Surface tension	71.6 mN/m
Partition coefficient n-octanol/water (Log Pow)	-1.07

Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylene)bis(benzenesulphonate) (27344-41-8)

Partition coefficient n-octanol/water (Log Pow)	-2.32 - OECD 107
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Hazardous to the ozone layer

Ozone	: classification not possible
Other adverse effects	: No additional information available

13. Disposal considerations

Product/Packaging disposal recommendations	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Regional legislation (waste)	: Dispose of this material and its container at hazardous or special waste collection point.
Sewage disposal recommendations	: Prevent entry to sewers and public waters.
Additional information	: Clean up even minor leaks or spills if possible without unnecessary risk.

14. Transport information**International Regulations****Overland transport (UN RTDG)**

UN-No. (UN RTDG)	: Not regulated
Proper Shipping Name (UN RTDG)	: Not regulated
Packing group (UN RTDG)	: Not regulated
Transport hazard class(es) (UN RTDG)	: Not regulated

Regulations in Japan

Other information	: No supplementary information available
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15. Regulatory information**National law**

Chemical Substances Control Law	: Priority Assessment Chemical Substances (Act, Art.2, Para.5)
Fire Service Law	: Group 4, Flammable Liquids, Class 3 petroleum, Water-soluble liquids (Act, Art.2, Para.7, Appended Table 1, Group 4)
Law Relating to Prevention of Marine Pollution and Maritime Disasters	: Harmful Liquid Substances (Group Z), (Enforcement Order, Art. Appended Table 1)
Foreign Exchange and Foreign Trade Control Act	: Approval for Item 2-2 (Import Trade Control Order, Art.4, Para. 1, Item 2) Export Trade Control Order, Appended Table 1, Para.16 Export Approval (Export Trade Control Order, Appended Table 2)
Law for the Control of Export, Import and Others of Specified Hazardous Wastes and Other Wastes (Basel Convention)	: Specified hazardous waste (Act, Art.2, Para.1-1 (a), Ministerial Ordinance No.12 of June 18, 2018) Single wall carbon nanotubes are listed with its element "Carbon" ; others are all listed

Other regulatory Information

Regulatory reference	: Not listed on the United States TSCA (Toxic Substances Control Act) inventory
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16. Other information

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
WGK	Water Hazard Class
VOC	Volatile Organic Compounds
OEL	Occupational Exposure Limit
N. O. S.	Not Otherwise Specified
IOELV	Indicative Occupational Exposure Limit Value
EN	European Standard
EC-No.	European Community number
CAS-No.	Chemical Abstract Service number
vPvB	Very Persistent and Very Bioaccumulative
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
STP	Sewage treatment plant
SDS	Safety Data Sheet
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
TLM	Median Tolerance Limit
PNEC	Predicted No-Effect Concentration
PBT	Persistent Bioaccumulative Toxic
OECD	Organisation for Economic Co-operation and Development
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
NOEC	No-Observed Effect Concentration
NOAEL	No-Observed Adverse Effect Level
LD50	Median lethal dose
NOAEC	No-Observed Adverse Effect Concentration
LOAEL	Lowest Observed Adverse Effect Level
IMDG	International Maritime Dangerous Goods
EC50	Median effective concentration
IARC	International Agency for Research on Cancer
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DNEL	Derived-No Effect Level
DMEL	Derived Minimal Effect level
BCF	Bioconcentration factor
LC50	Median lethal concentration
ATE	Acute Toxicity Estimate
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
IATA	International Air Transport Association

Revision : All recent revision(s) are noted by a bold triangle pointed to right ‘▶’.

Disclaimer : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. It is the user's responsibility to take mentioned precaution measures and ensure that this information is complete and sufficient for the use of this product.

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