

### SECTION 1 Chemical product and company identification

**Chemical English name** : TUBALL MATRIX 302

**Supplier**

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**Emergency number**

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

**China** : 400 120 6011 (English, Mandarin) (toll-free, access from China only)

**中国 (大陆, 24 小时应急电话)** : \*\*0532 8388 9090 (英语, 中文)

**China (Mainland)** : \*\*0532 8388 9090 (English, Chinese; 24-hour emergency call)

**Recommended use of the chemical** : Industrial use as additive in polymers, resins and/or coatings

**Restricted use of the chemical** : No additional information available

### SECTION 2 Hazards identification

**Emergency overview**

Flakes. Pasty. Black. White inclusions permissible. Odourless. Causes serious eye irritation.

**GHS hazard classification**

Health hazards : Serious eye damage/eye irritation, Category 2

Other hazards not mentioned above are Not applicable or No data is available.

**Label elements**

Hazard pictograms (GHS CN) :



Signal word (GHS CN) : Warning.

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

**Precautionary statements (GHS CN)**

Prevention measures : P264 - Wash hands thoroughly after handling.

P280 - Wear protective gloves, protective clothing, eye protection.

Incident response : P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 - If eye irritation persists: Get medical advice/attention.

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### Physical and chemical hazards

No additional information available

### Health hazards

Causes serious eye irritation

Symptoms/effects after eye contact : Eye irritation

Symptoms/effects after ingestion : Gastrointestinal complaints, Diarrhea

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

### Environmental hazards

No additional information available

### Other hazards

No additional information available

## SECTION 3 Composition/information on ingredients

**Product form** : Mixture.

Ingredient(s)	Concentration or concentration ranges (w/w %)	CAS No.	Classification (GHS CN)
Alkylene glycol derivative	70	Trade Secret	Not classified
Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylene)bis(benzenesulphonate)	20	27344-41-8	Acute toxicity (Oral), Category 4 Acute toxicity (Dermal), Category 5 Serious eye damage/eye irritation, Category 2A Hazardous to the aquatic environment – Acute hazard, Category 3
Single wall carbon nanotubes*	10	Trade Secret	Serious eye damage/eye irritation, Category 2

**Comments** : \* Single wall carbon nanotubes TUBALL™.

## SECTION 4 First-aid measures

### Description of necessary 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

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- 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.  
Do not induce vomiting.  
Get medical advice/attention.

### Most important symptoms/effects

- Symptoms/effects after eye contact : Eye irritation
- Symptoms/effects after ingestion : Gastrointestinal complaints  
Diarrhea
- Symptoms/effects after inhalation : May cause irritation to the respiratory tract

### Advices for first aid responders

No additional information available

### Notes for the doctor

- Other medical advice or treatment : Treat symptomatically

## SECTION 5 Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media : Powder, Alcohol-resistant foam, Water spray, Carbon dioxide (CO<sub>2</sub>)
- Unsuitable extinguishing media : Do not use a heavy water stream

### Specific hazards

- Fire hazard : Under fire conditions, hazardous fumes will be present
- Hazardous decomposition products in case of fire : Carbon dioxide.  
Carbon monoxide

### Advice for firefighters and protective measures

- Firefighting instructions : No additional information available
- Protection during firefighting : Full face mask  
Do not attempt to take action without suitable protective equipment  
Positive pressure self-contained breathing apparatus (SCBA)  
Self-contained breathing apparatus  
Complete protective clothing

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- Heat and ignition sources : Keep away from open flames, hot surfaces and sources of ignition
- General measures : No additional information available
- Personal Precautions, Protective Equipment and Emergency Procedures : No additional information available

### For non-emergency personnel

- Protective equipment : Wear suitable protective clothing

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Emergency procedures : Ventilate spillage area  
Ensure adequate ventilation  
Evacuate area.  
Avoid contact with skin and eyes

### For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment  
Wear suitable protective clothing, gloves and eye/face protection  
In case of fire: Positive pressure self-contained breathing apparatus (SCBA)  
For further information refer to section 8: "Exposure controls/personal protection"

Emergency procedures : Provide adequate ventilation  
Evacuate area.  
Avoid inhalation of vapours

### Environmental precautions

Avoid release to the environment  
Do not allow to enter into surface water or drains  
Collect contaminated extinguishing water separately and must not enter the sewage system

### Methods and material for containment and cleaning up

Methods for cleaning : No additional information available  
For containment : No additional information available

### Prevention measures for secondary accidents

Prevention Measures for Secondary Accidents : No additional information available  
Other information : Dispose of materials or solid residues at an authorized site

## SECTION 7 Handling and storage

### Handling

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

Hygiene measures : Do not eat, drink or smoke when using this product.  
Wash contaminated clothing before reuse.  
Always wash hands after handling the product

Local and general ventilation : No additional information available

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### 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 additional information 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

## SECTION 8 Exposure controls / Personal protection equipment

### Occupational exposure limits

Single wall carbon nanotubes	
Japan - Occupational Exposure Limits	
Exposure limits (JSOH)	【Occupational exposure limits for dusts】 (Class 1) Respirable dust 0.5mg/m <sup>3</sup> Total dust 2mg/m <sup>3</sup>

### Biological limit values

No additional information available

### Monitoring methods

No additional information available

### Appropriate engineering controls

Ensure good ventilation of the work station

### Personal protective equipment

- Personal protective equipment : Gloves  
Protective clothing  
Safety glasses
- Environmental exposure controls : Avoid release to the environment.
- 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)
- 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

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Personal protective equipment symbol(s)



## SECTION 9 Physical and chemical properties

<b>Physical state</b>	: Solid
<b>Appearance</b>	: Flakes. Pasty
<b>Colour</b>	: Black, White inclusions permissible
<b>Odour</b>	: Odourless
<b>pH</b>	: No data available
<b>Melting point</b>	: No data available
<b>Freezing point</b>	: Not applicable
<b>Boiling point</b>	: Not applicable
<b>Flash point</b>	: No data available
<b>Auto-ignition temperature</b>	: No data available
<b>Decomposition temperature</b>	: No data available
<b>Vapour pressure</b>	: No data available
<b>Relative vapour density at 20°C</b>	: No data available
<b>Density</b>	: 1.03 g/ml
<b>Solubility</b>	: No data available
<b>Partition coefficient n-octanol/water (Log Pow)</b>	: No data available
<b>Lower explosion limit</b>	: No data available
<b>Upper explosion limit</b>	: No data available
<b>Radioactive</b>	: No
<b>Explosive properties</b>	: Not explosive
<b>Oxidising properties</b>	: Non oxidizing

## SECTION 10 Stability and reactivity

<b>Chemical stability</b>	: Stable under normal conditions
<b>Reactivity</b>	: Stable under normal conditions
<b>Possibility of hazardous reactions</b>	: None known
<b>Conditions to avoid</b>	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
<b>Incompatible materials</b>	: Strong oxidizing agents Strong bases Strong acids Isocyanates

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<b>Hazardous decomposition products</b>	: Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases Nitrogen oxides Sulphur oxides
<b>Other properties</b>	: No additional information available

## SECTION 11 Toxicological information

### Acute toxicity

Acute toxicity (oral)	: Not classified.
Acute toxicity (dermal)	: No data available
Acute toxicity (inhalation)	: No data available

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)	
LD50 oral rat	≈ 2000 mg/kg - OECD 401
LD50 dermal rat	> 2000 mg/kg - OECD 402

### Skin corrosion/irritation

Skin corrosion/irritation	: No data available
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### Serious eye damage/eye irritation

Serious eye damage/irritation	: Causes serious eye irritation.
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### Respiratory or skin sensitisation

Respiratory or skin sensitisation	: No data available
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### Germ cell mutagenicity

Germ cell mutagenicity	: No data available
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### Carcinogenicity

Carcinogenicity	: No data available
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### Reproductive toxicity

Reproductive toxicity	: No data available
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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 - no adverse effects seen at highest dose tested on prenatal development (conceptus to birth) - OECD 422
NOAEL (animal, F1)	> 1000 mg/kg bw/day - no adverse effects seen at highest dose tested on postnatal development (pup) - OECD 422

### STOT - single exposure

STOT-single exposure : No data available

### STOT - repeated exposure

STOT-repeated exposure : No data available

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

Aspiration hazard : No data available

## SECTION 12 Ecological information

### Ecotoxicity

Hazardous to the aquatic environment, short-term (acute) : No data available

Hazardous to the aquatic environment, long-term (chronic) : No data available

Alkylene glycol derivative	
LC50 fish - 96h	40613 mg/l Oncorhynchus mykiss (Rainbow trout)
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
Partition coefficient n-octanol/water (Log Pow)	-1.07
Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylene)bis(benzenesulphonate)	
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



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

Alkylene glycol derivative	
Persistence and degradability	Readily biodegradable
Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylene)bis(benzenesulphonate)	
Persistence and degradability	Readily biodegradable
Biochemical oxygen demand (BOD)	0 mg O <sub>2</sub> /g substance - 5 days
Chemical oxygen demand (COD)	1.507 mg O <sub>2</sub> /g substance
Biodegradation	> 70 % - OECD 301F
Single wall carbon nanotubes	
Not rapidly degradable	Yes

### Bioaccumulative potential

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)	
Partition coefficient n-octanol/water (Log Pow)	-2.32 - OECD 107

### Mobility in soil

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)	
Partition coefficient n-octanol/water (Log Pow)	-2.32 - OECD 107

### Other adverse effects

Classification procedure (Ozone) : No data available

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### SECTION 13 Disposal considerations

<b>Waste treatment methods</b>	: Disposal through controlled incineration or authorised waste dump, Dispose of contents/container in accordance with licensed collector's sorting instructions.
<b>Contaminated container and packaging</b>	: No additional information available
<b>Additional information</b>	: Clean up even minor leaks or spills if possible without unnecessary risk.
<b>Product/Packaging disposal recommendations</b>	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
<b>Sewage disposal recommendations</b>	: Prevent entry to sewers and public waters
<b>Regional legislation (waste)</b>	: Dispose of this material and its container at hazardous or special waste collection point

### SECTION 14 Transport information

Overland transport (JT/T 617)	Transport by sea	Air transport
<b>UN number</b>		
Not regulated	Not regulated	Not regulated
<b>Proper shipping name</b>		
Not regulated	Not regulated	Not regulated
<b>Transport document description</b>		
Not regulated	Not regulated	Not regulated
<b>Transport hazard class(es)</b>		
Not regulated	Not regulated	Not regulated
Not regulated	Not regulated	Not regulated
<b>Packing group</b>		
Not regulated	Not regulated	Not regulated
<b>Environmental hazards</b>		
Not regulated	Not regulated	Not regulated

#### Special transport precautions

Special rules on packaging : Keep container tightly closed

Overland transport (JT/T 617)

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

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## SECTION 15 Regulatory information

### New Chemical Substance Environmental Management Registration Measures (MEE Order 12 of 2020)

**Inventory of Existing Chemical Substances** : Contains listed substance(s)

**in China (IECSC)**

Alkylene glycol derivative

Benzenesulfonic acid, 2,2'-[(1,1'-biphenyl)-4,4'-diyl-di-2,1-ethenediyl]bis-, disodium salt

Single wall carbon nanotubes are listed with its element "Carbon"

### Regulations on the Safe Management of Hazardous Chemicals (Decree 591 of the State Council)

**Catalogue of Hazardous Chemicals (2015)** : Contains Hazardous Chemical(s)

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

Single wall carbon nanotubes are not listed

## SECTION 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

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### Abbreviations and acronyms

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.

Safety Data Sheet (SDS), China

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