

**SECTION 1: Identification of the substance or mixture and of the supplier**

**1.1. Product identifier**

Product form : Mixture  
Trade name : TUBALL MATRIX 204  
Type of product : Nanoform embedded in a matrix

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Recommended use : Industrial use as additive in polymers, resins and/or coatings

**1.3. Details of the supplier of the safety data sheet**

**Supplier**

China:  
OCSiAI Hong Kong Limited  
No. 1102, 11/F, Lippo Sun  
Plaza, 28 Canton Road,  
Tsim Sha Tsui, Kowloon,  
Hong Kong  
T +852 3575 3946  
09:00-17:00; GMT+8  
china@ocsiail.com

**1.4. Emergency telephone number**

**EMEA** : +44 1865 407333 (English) (Carechem 24)  
**East/South East Asia** : +65 3158 1074 (English, Hindi, Japanese, Korean, Malay, Mandarin) (Carechem 24)

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

**Classification according to MOI notification B.E. 2555 (2012)**

Skin corrosion/irritation, Category 3 H316  
Serious eye damage/eye irritation, Category 2 H319  
Skin sensitisation, Category 1 H317  
Hazardous to the aquatic environment – Chronic Hazard, Category 2 H411

**2.2. Label elements**

**Labelling according to MOI notification B.E. 2555 (2012)**

Hazard pictograms (GHS TH) :



Signal word (GHS TH) : Warning  
Hazard statements (GHS TH) : H316 - Causes mild skin irritation  
H317 - May cause an allergic skin reaction  
H319 - Causes serious eye irritation  
H411 - Toxic to aquatic life with long lasting effects  
Precautionary statements (GHS TH) : P261 - Avoid breathing dust, fume, gas, mist, spray, vapours.  
P264 - Wash hands thoroughly after handling.  
P272 - Contaminated work clothing should not be allowed out of the workplace.  
P273 - Avoid release to the environment.  
P280 - Wear eye protection, protective clothing, Protective gloves.  
P302+P352 - IF ON SKIN: Wash with plenty of water/...  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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P321 - Specific treatment (see supplemental first aid instruction on this label).  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P363 - Wash contaminated clothing before reuse.  
P391 - Collect spillage.  
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%
Triethylene glycol dimethacrylate	CAS-No.: 109-16-0	80
Single wall carbon nanotubes*	Trade Secret	10
Polymer	Trade Secret	5 – 7
Alkylolammonium salt	CAS-No.: 398475-96-2	3 – 5

Comments : \* Single wall carbon nanotubes TUBALL™

## SECTION 4: First aid measures

### 4.1. 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.  
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.  
First-aid measures after ingestion : Rinse mouth out with water. Do not induce vomiting. Get medical attention.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact : May cause an allergic skin reaction.  
Symptoms/effects after eye contact : Causes serious eye irritation.

### 4.3. Indication of any immediate medical attention and special treatment needed

Other medical advice or treatment : Treat symptomatically.

## SECTION 5: Fire fighting measures

### 5.1. 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.

### 5.2. Special hazards arising from the substance or mixture

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

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### 5.3. Special protective actions for fire-fighters

Protection during firefighting	: Full face mask. Positive pressure self-contained breathing apparatus (SCBA). Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
Hazchem Code	: 2Z
EAC code	: 2Z

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Protective equipment	: Wear suitable protective clothing.
Emergency procedures	: Ventilate spillage area. Ensure adequate ventilation. Evacuate area.

#### 6.1.2. 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.

### 6.2. 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.

### 6.3. Methods and materials for containment and cleaning up

For containment	: Clean spills promptly. Ventilate affected area. Stop leak if safe to do so.
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.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling	: Ensure good ventilation of the work station. Wear personal protective equipment. 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.
Hygiene measures	: Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Store in dry, cool, well-ventilated area. Keep container tightly closed. Protect from sunlight. Store in a well-ventilated place. Keep cool.
Incompatible products	: Oxidizing agent. Reducing agents.
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

### 8.1. Control parameters

No additional information available

#### Exposure limit values for the other components

No additional information available

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### 8.2. Monitoring

No additional information available

### 8.3. Appropriate engineering controls

Appropriate engineering controls : Provide local exhaust or general room ventilation. Ensure good ventilation of the work station.

### 8.4. Personal protective equipment

Hand protection : Wear suitable gloves.

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves, Disposable gloves	Chloroprene rubber (CR)		>0.18		
Disposable gloves, Reusable gloves	Butyl rubber		>0.18		
Disposable gloves, Reusable gloves	Neoprene rubber (HNBR)		>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 inadequate ventilation wear respiratory protection. Selection of respiratory protection must be based on the result of the risk assessment



Environmental exposure controls : Avoid release to the environment.

## SECTION 9: Physical and chemical properties

Physical state	: Solid
Appearance	: Flakes. Pasty.
Colour	: Black
Odour	: Characteristic
Odour threshold	: No additional information available
pH	: No additional information available
Melting point, Freezing point	: Freezing point: Not applicable
Boiling point	: No data available
Flash point	: > 150 °C (Triethylene glycol dimethacrylate)
Auto-ignition temperature	: 255 °C (Triethylene glycol dimethacrylate)
Flammability	: Non flammable.
Vapour pressure	: No additional information available
Evaporation rate	: No additional information available
Explosive limits	: Not applicable
Explosive properties	: Not explosive.
Minimum ignition energy	: No data available
Solubility	: Insoluble in water.
Density	: No additional information available
Relative density	: No additional information available
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Oxidising properties	: Non oxidizing.

## SECTION 10: Stability and reactivity

Chemical stability	: Stable under normal conditions.
Conditions to avoid	: Keep away from open flames, hot surfaces and sources of ignition.

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Hazardous decomposition products	: Carbon dioxide. Carbon monoxide. Irritating vapours.
Incompatible materials	: Oxidizing agent. Reducing agents.
Possibility of hazardous reactions	: None known.
Reactivity	: Stable under normal conditions.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

<b>Triethylene glycol dimethacrylate</b>	
LD50 oral rat	> 2000 mg/kg

<b>Alkylolammonium salt</b>	
LD50 oral rat	> 5000 mg/kg

Skin corrosion/irritation	: Causes mild skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified

<b>Single wall carbon nanotubes</b>	
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	: Not classified
STOT-repeated exposure	: Not classified

<b>Triethylene glycol dimethacrylate</b>	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight/day OECD 422

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

Aspiration hazard	: Not classified
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### SECTION 12: Ecological information

#### 12.1. Ecotoxicity

Hazardous to the aquatic environment, short-term (acute)	: Toxic to aquatic life.
Hazardous to the aquatic environment, long-term (chronic)	: Toxic to aquatic life with long lasting effects.

<b>Triethylene glycol dimethacrylate</b>	
LC50 fish - 96h	16.4 mg/l - OECD 203
EC50 algae - 72h	> 100 mg/l - OECD 201
Partition coefficient n-octanol/water (Log Pow)	2.3 - OECD 117

<b>Alkylolammonium salt</b>	
LC50 fish - 96h	8 mg/l Oncorhynchus mykiss (Rainbow trout) - OECD 203

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Alkylolammonium salt	
ErC50 algae - 72h	> 1 mg/l Pseudokirchneriella subcapitata - OECD 201

### 12.2. Persistence and degradability

Triethylene glycol dimethacrylate	
Persistence and degradability	Readily biodegradable.

Single wall carbon nanotubes	
Not rapidly degradable	

Alkylolammonium salt	
Persistence and degradability	Not readily biodegradable.

### 12.3. Bioaccumulative potential

Triethylene glycol dimethacrylate	
Partition coefficient n-octanol/water (Log Pow)	2.3 - OECD 117

### 12.4. Mobility in soil

Triethylene glycol dimethacrylate	
Partition coefficient n-octanol/water (Log Pow)	2.3 - OECD 117

### 12.5. Other adverse effects

Ozone	: Not classified
Other adverse effects	: No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Prevent entry to sewers and public waters.
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.
Additional information	: Clean up even minor leaks or spills if possible without unnecessary risk.




## SECTION 14: Transport information

IMDG	IATA	UNRTDG
<b>14.1. UN number</b>		
3077	3077	3077
<b>14.2. UN proper shipping name</b>		
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS : Alkylolammonium salt)	Environmentally hazardous substance, solid, n.o.s. (CONTAINS : Alkylolammonium salt)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS : Alkylolammonium salt)
<b>14.3. Transport hazard class(es)</b>		
9	9	9

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IMDG	IATA	UNRTDG
		
<b>14.4. Packing group</b>		
III	III	III
<b>14.5. Environmental hazards</b>		
Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available		

### 14.6. Special precautions for user

#### UN RTDG

Special provisions (UN RTDG)	: 274, 331, 335, 375
Limited quantities (UN RTDG)	: 5 kg
Excepted quantities (UN RTDG)	: E1
Packing instruction (UN RTDG)	: P002, IBC08, LP02
Special packing provisions (UN RTDG)	: PP12, B3
Portable tank and bulk container special instructions (UN RTDG)	: T1, BK2, BK3
Portable tank and bulk container special provisions (UN RTDG)	: TP33

#### IMDG

Special provisions (IMDG)	: 274, 335, 966, 967, 969
Limited quantities (IMDG)	: 5 kg
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: LP02, P002
Special packing provisions (IMDG)	: PP12
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3
Tank instructions (IMDG)	: BK1, BK2, BK3, T1
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	: S-F - SPILLAGE SCHEDULE Foxtrot - WATER-SOLUBLE MARINE POLLUTANTS
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW23

#### IATA

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y956
PCA limited quantity max net quantity (IATA)	: 30kgG
PCA packing instructions (IATA)	: 956
PCA max net quantity (IATA)	: 400kg
CAO packing instructions (IATA)	: 956
CAO max net quantity (IATA)	: 400kg
Special provisions (IATA)	: A97, A158, A179, A197
ERG code (IATA)	: 9L

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

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According to the MOI Notification B.E. 2555 (2012)

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations specific for the product in question

##### Other relevant regulations

Thailand Existing Chemicals Inventory (DIW)	Applicable	Triethylene glycol dimethacrylate
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#### 15.2. International agreements

No additional information available

### SECTION 16: Other information

Version : 1.0  
Issue date : 13/12/2022

Abbreviations and acronyms : CAS-No. - Chemical Abstract Service number  
EC50 - Median effective concentration  
EC-No. - European Community number  
EN - European Standard  
IATA - International Air Transport Association  
IMDG - International Maritime Dangerous Goods  
LC50 - Median lethal concentration  
LD50 - Median lethal dose  
LOAEL - Lowest Observed Adverse Effect Level  
NOAEC - No-Observed Adverse Effect Concentration  
NOAEL - No-Observed Adverse Effect Level  
NOEC - No-Observed Effect Concentration  
OEL - Occupational Exposure Limit  
PNEC - Predicted No-Effect Concentration  
SDS - Safety Data Sheet

Other information : None.

#### Full text of H-statements:

Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Acute 2	Hazardous to the aquatic environment – Acute Hazard, Category 2
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Irrit. 3	Skin corrosion/irritation, Category 3
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1B	Skin sensitisation, category 1B
H316	Causes mild skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H411	Toxic to aquatic life with long lasting effects

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), Thailand



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According to the MOI Notification B.E. 2555 (2012)

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