

SECTION 1 Chemical product and company identification

Chemical English name : TUBALL MATRIX 201

Supplier

Ossia Asia Pacific Co., Ltd.
Office 208, Pilot Plant
Bldg., Incheon Technopark
12 Gaetbeol-ro, Yeonsu-
gu, Incheon, 406-840
Republic of Korea
T +82 32 260 0407
09.00-17.00 GMT+9
asiapacific@ocsial.com

OCSiAl 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@ocsial.com

VIMAL INTERTRADE PVT LTD.
Shivam Centrum, Sahar Road,
Koldongri, Above Nexa Showroom,
Andheri East, Mumbai – 400 069
T+91 22 6288 4200
09:00-17:00; GMT+5.5
india@ocsial.com

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
The plasticizer is to be used for thermoset compounds to add electrical conductivity

Restricted use of the chemical : No additional information available

SECTION 2 Hazards identification

Emergency overview

Flakes. Pasty. Black. Slight. May cause an allergic skin reaction. Causes serious eye irritation. Suspected of causing genetic defects. Toxic to aquatic life with long lasting effects.

GHS hazard classification

Health hazards : Serious eye damage/eye irritation, Category 2
: Skin sensitization, Category 1
: Germ cell mutagenicity, Category 2

Environmental hazards : Hazardous to the aquatic environment – Chronic hazard, 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) : H317 - May cause an allergic skin reaction

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

H319 - Causes serious eye irritation
H341 - Suspected of causing genetic defects
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (GHS CN)

Prevention measures : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Incident response : 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.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P321 - Specific treatment (see supplemental first aid instruction on this label).
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.

Safe storage : P405 - Store locked up.

Disposal : P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Physical and chemical hazards

No additional information available

Health hazards

May cause an allergic skin reaction
Causes serious eye irritation
Suspected of causing genetic defects
Symptoms/effects after eye contact : Eye irritation
Symptoms/effects after skin contact : May cause an allergic skin reaction.

Environmental hazards

Toxic to aquatic life with long lasting effects

Other hazards

No additional information available

SECTION 3 Composition/information on ingredients

Product form : Mixture.

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

Ingredient(s)	Concentration or concentration ranges (w/w %)	CAS No.	Classification (GHS CN)
2,3-epoxypropyl neodecanoate	90	26761-45-5	Skin sensitization, Category 1 Germ cell mutagenicity, Category 2 Hazardous to the aquatic environment – Chronic hazard, Category 2
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 general : IF exposed or concerned: Get medical advice/attention.
- 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.
If skin irritation or rash occurs: Get medical advice/attention.
- First-aid measures after eye contact : Get medical attention.
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 attention.
Call a poison center or a doctor if you feel unwell

Most important symptoms/effects

- Symptoms/effects after eye contact : Eye irritation
- Symptoms/effects after skin contact : May cause an allergic skin reaction.

Advices for first aid responders

No additional information available

Notes for the doctor

- Other medical advice or treatment : Treat symptomatically.
Call a physician immediately if large quantities have been ingested or inhaled

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

SECTION 5 Fire-fighting measures

Extinguishing media

- Suitable extinguishing media : Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂)
Water spray
Dry powder
Foam
- Unsuitable extinguishing media : None known

Specific hazards

- Fire hazard : Flammable vapours can accumulate in head space of closed systems
Residue may be flammable and explosive
- Hazardous decomposition products in case of fire : Carbon dioxide
Carbon monoxide
- Explosion hazard : May form flammable/explosive vapour-air mixture

Advice for firefighters and protective measures

- Firefighting instructions : No additional information available
- Protection during firefighting : Full face mask
Positive pressure self-contained breathing apparatus (SCBA)
Do not attempt to take action without suitable protective equipment
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
- Emergency procedures : Ventilate spillage area
Ensure adequate ventilation
Evacuate area.
Avoid contact with skin and eyes
Avoid breathing dust/fume/gas/mist/vapours/spray.

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.

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

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

See Section 13 for disposal information

Methods and material for containment and cleaning up

Methods for cleaning : No additional information available

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

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
To prevent thermal burns avoid contact with hot product
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid contact with skin and eyes
Avoid breathing dust, fume, gas, mist, spray, vapours.
Wear personal protective equipment

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

Local and general ventilation : No additional information available

Storage

Storage conditions : Store in dry, well-ventilated area
Store at ambient temperature
Keep container tightly closed.
Protect from sunlight.
Store locked up.
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

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

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 ³ Total dust 2mg/m ³

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
Safety glasses
Protective clothing
Environmental exposure controls : Avoid release to the environment.
Hand protection : Wear suitable gloves

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves, Reusable gloves.	Nitrile rubber (NBR).		>0.18		

Eye protection : Chemical goggles or safety glasses
Skin and body protection : Protective clothing (with elasticated cuffs and closed neck)
Respiratory protection : Selection of respiratory protection must be based on the result of the risk assessment
[In case of inadequate ventilation] wear respiratory protection.
Dust production: dust mask with filter type P2

Personal protective equipment symbol(s)



Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

SECTION 9 Physical and chemical properties

Physical state	: Solid
Appearance	: Flakes. Pasty
Colour	: Black
Odour	: Slight
pH	: No data available
Melting point	: -60 °C (2,3-epoxypropyl neodecanoate)
Freezing point	: Not applicable
Boiling point	: 278 °C (2,3-epoxypropyl neodecanoate)
Flash point	: 126 °C (2,3-epoxypropyl neodecanoate)
Auto-ignition temperature	: 397 (2,3-epoxypropyl neodecanoate)
Decomposition temperature	: No data available
Flammability	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20°C	: No data available
Density	: No data available
Solubility	: Slightly soluble in water, Soluble in organic solvents.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: Not applicable
Explosive limits (vol %)	: Not applicable
Lower explosion limit	: No data available
Upper explosion limit	: No data available
Radioactive	: No
Explosive properties	: Product is not explosive
Oxidising properties	: Non oxidizing

SECTION 10 Stability and reactivity

Chemical stability	: Stable under normal conditions
Reactivity	: Stable under normal conditions
Possibility of hazardous reactions	: None known
Conditions to avoid	: Keep away from open flames, hot surfaces and sources of ignition
Incompatible materials	: Strong oxidizing agents
Hazardous decomposition products	: Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases
Other properties	: No additional information available

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

SECTION 11 Toxicological information

Acute toxicity

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

2,3-epoxypropyl neodecanoate	
LD50 oral rat	> 9700 mg/kg
LD50 dermal rat	3800 mg/kg
ATE CN (dermal)	3800 mg/kg bodyweight

Skin corrosion/irritation

- Skin corrosion/irritation : No data available

Serious eye damage/eye irritation

- Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitisation

- Respiratory or skin sensitisation : May cause an allergic skin reaction.

Germ cell mutagenicity

- Germ cell mutagenicity : Suspected of causing genetic defects.

Carcinogenicity

- Carcinogenicity : No data available

Reproductive toxicity

- Reproductive toxicity : No data available

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

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

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

Ecology - general : Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short-term (acute) : Not classified.

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

2,3-epoxypropyl neodecanoate	
LC50 fish - 96h	9.6 mg/l Oncorhynchus mykiss (Rainbow trout)
EC50 crustacea - 48h	4.8 mg/l Daphnia magna (Water flea)
EC50 algae - 96h	3.5 mg/l algae

Persistence and degradability

Single wall carbon nanotubes	
Not rapidly degradable	Yes

Bioaccumulative potential

2,3-epoxypropyl neodecanoate	
Partition coefficient n-octanol/water (Log Pow)	4.4 @ 20 °C

Mobility in soil

2,3-epoxypropyl neodecanoate	
Partition coefficient n-octanol/water (Log Pow)	4.4 @ 20 °C

Other adverse effects

Classification procedure (Ozone) : No data available

SECTION 13 Disposal considerations

Waste treatment methods : Disposal through controlled incineration or authorised waste dump, Dispose of contents/container in accordance with licensed collector's sorting instructions.

Contaminated container and packaging : No additional information available




Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

Additional information	: Clean up even minor leaks or spills if possible without unnecessary risk.
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
Sewage disposal recommendations	: Prevent entry to sewers and public waters
Regional legislation (waste)	: 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
UN number		
3077	3077	3077
Proper shipping name		
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS : 2,3-epoxypropyl neodecanoate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS : 2,3-epoxypropyl neodecanoate)	Environmentally hazardous substance, solid, n.o.s. (CONTAINS : 2,3-epoxypropyl neodecanoate)
Transport document description		
UN 3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS : 2,3-epoxypropyl neodecanoate), Class 9, PG III	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS : 2,3-epoxypropyl neodecanoate), 9, III, MARINE POLLUTANT	UN 3077 Environmentally hazardous substance, solid, n.o.s. (CONTAINS : 2,3-epoxypropyl neodecanoate), 9, III
Transport hazard class(es)		
9	9	9
		
Packing group		
III.	III.	III.
Environmental hazards		
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes

Special transport precautions

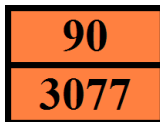
Special rules on packaging	: Keep container tightly closed
Overland transport (JT/T 617)	
Classification code (JT/T 617)	: M7.

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

Special provisions (JT/T 617)	: 274, 335, 375, 601.
Limited quantities (JT/T 617)	: 5kg.
Excepted quantities (JT/T 617)	: E1.
Packing instructions (JT/T 617)	: P002, IBC08, LP02, R001.
Special packing provisions (JT/T 617)	: PP12, B3.
Mixed packing provisions (JT/T 617)	: MP10.
Portable tank and bulk container instructions (JT/T 617)	: T1, BK1, BK2.
Portable tank and bulk container special provisions (JT/T 617)	: TP33.
Tank codes (JT/T 617)	: SGAV, LGBV.
Vehicle for tank carriage (JT/T 617)	: AT.
Transport category (JT/T 617)	: 3.
Tunnel restriction code (JT/T 617)	: E.
Special provisions for carriage - Packages (JT/T 617)	: V13.
Special provisions for carriage - Bulk (JT/T 617)	: VC1, VC2.
Special provisions for carriage - Loading, unloading and handling (JT/T 617)	: CV13.
Hazard identification number (JT/T 617)	: 90.
Orange-coloured plate (JT/T 617)	:



Transport by sea

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.
EmS-No. (Spillage)	: S-F.
Stowage category (IMDG)	: A.
Stowage and handling (IMDG)	: SW23.

Air transport

PCA Excepted quantities (IATA)	: E1.
PCA Limited quantities (IATA)	: Y956.

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

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, A215.
ERG code (IATA)	: 9L.

SECTION 15 Regulatory information

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

Inventory of Existing Chemical Substances in China (IECSC) : Contains listed substance(s)
2,3-epoxypropyl neodecanoate
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)
2,3-epoxypropyl neodecanoate
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
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BLV	Biological limit value
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
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

Safety Data Sheet

TUBALL MATRIX 201

Compiled according to GB/T 16483-2008, GB/T 17519-2013

Abbreviations and acronyms

NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

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

DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable