

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

1.1. Product identifier

Product form : Mixture
Generic name : TUBALL MATRIX 814
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:
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

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)

Serious eye damage/eye irritation, Category 2 H319
Hazardous to the aquatic environment – Acute Hazard, Category 2 H401
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) : H319 - Causes serious eye irritation
H411 - Toxic to aquatic life with long lasting effects
Precautionary statements (GHS TH) : P264 - Wash hands, forearms and face thoroughly after handling.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
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.
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.

TUBALL MATRIX 814

Safety Data Sheet

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

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	%
Epoxidized fatty acid glyceride	Trade Secret	73.5
Poly(oxy-1,2-ethanediyl), a-hydro-w-hydroxy-, mono-C13-15-alkyl ethers, succinates	CAS-No.: 162627-31-8	12.25 – 17.15
Distillates (petroleum), hydrotreated light paraffinic; Baseoil — unspecified	CAS-No.: 64742-55-8	7.35 – 12.25
Single wall carbon nanotubes*	N/A	2

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. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth out with water. Drink plenty of water. Do not induce vomiting. Get medical attention.

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

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 : Foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media : Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released. Carbon dioxide (CO2). Carbon monoxide. Acrolein.

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.

EAC code : 2Z

TUBALL MATRIX 814

Safety Data Sheet

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

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. Avoid contact with skin and eyes. 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. 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. Take precautionary measures against static discharge. 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. |

7.2. Conditions for safe storage, including any incompatibilities

- | | |
|------------------------------|---|
| Storage conditions | : Store in dry, well-ventilated area. Keep container tightly closed. Store in a well-ventilated place. Keep cool. |
| Incompatible products | : Strong oxidizing 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

8.2. Monitoring

No additional information available

8.3. Appropriate engineering controls

- | | |
|----------------------------------|--|
| Appropriate engineering controls | : Provide local exhaust or general room ventilation. |
|----------------------------------|--|

TUBALL MATRIX 814

Safety Data Sheet

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

8.4. Personal protective equipment

Hand protection : Chemically resistant protective gloves

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves, Disposable gloves	Nitrile rubber (NBR), Polyvinylchloride (PVC)		> 0,11		

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.



Environmental exposure controls : Do not flush into surface water or sewer system. Avoid release to the environment.

SECTION 9: Physical and chemical properties

Physical state	: Solid
Appearance	: Viscous. Paste.
Colour	: Black
Odour	: No data available
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	: 231 °C (Epoxidized fatty acid glyceride)
Auto-ignition temperature	: Not applicable
Decomposition temperature	: > 200 °C (Epoxidized fatty acid glyceride)
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	: No additional information available
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.
Hazardous decomposition products	: Carbon dioxide. Carbon monoxide. Acrolein.
Incompatible materials	: Strong oxidizing 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

TUBALL MATRIX 814

Safety Data Sheet

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

Epoxidized fatty acid glyceride	
LD50 oral rat	> 5000 mg/kg bodyweight - OECD 402
LD50 dermal rabbit	> 20000 mg/kg - OECD 402

Poly(oxy-1,2-ethanediyl), a-hydro-w-hydroxy-, mono-C13-15-alkyl ethers, succinates	
LD50 oral rat	> 4000 mg/kg - OECD 401
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified

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	: Not classified
STOT-repeated exposure	: Not classified

Epoxidized fatty acid glyceride	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight - OECD 422

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	: Not classified

SECTION 12: Ecological information

12.1. Ecotoxicity

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

Epoxidized fatty acid glyceride	
LC50 fish - 96h	450 mg/l Leuciscus idus (golden orfe)
EC50 crustacea - 48h	> 50 mg/l Daphnia magna (Water flea)
EC50 algae - 72h	8 mg/l Desmodesmus subspicatus

Poly(oxy-1,2-ethanediyl), a-hydro-w-hydroxy-, mono-C13-15-alkyl ethers, succinates	
LC50 fish - 96h	3.5 mg/l Oncorhynchus mykiss (Rainbow trout) - OECD 203
EC50 algae - 72h	> 0.78 mg/l Selenastrum capricornutum - OECD 201

12.2. Persistence and degradability

Epoxidized fatty acid glyceride	
Persistence and degradability	Readily biodegradable.
Biodegradation	92 % - 28 days - OECD 301B

TUBALL MATRIX 814

Safety Data Sheet

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

12.3. Bioaccumulative potential

Epoxidized fatty acid glyceride

Bioconcentration factor (BCF REACH)	375
Partition coefficient n-octanol/water (Log Pow)	≥ 6.2
Bioaccumulative potential	Bioaccumulation is not expected to occur.

Poly(oxy-1,2-ethanediyl), a-hydro-w-hydroxy-, mono-C13-15-alkyl ethers, succinates

Partition coefficient n-octanol/water (Log Pow)	≥ 0.6 - OECD 107
---	------------------

12.4. Mobility in soil

Epoxidized fatty acid glyceride

Partition coefficient n-octanol/water (Log Pow)	≥ 6.2
---	-------

Poly(oxy-1,2-ethanediyl), a-hydro-w-hydroxy-, mono-C13-15-alkyl ethers, succinates

Partition coefficient n-octanol/water (Log Pow)	≥ 0.6 - OECD 107
---	------------------

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	: Disposal through controlled incineration or authorised waste dump. 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
14.1. UN number		
3077	3077	3077
14.2. UN proper shipping name		
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS: Acidic ester)	Environmentally hazardous substance, solid, n.o.s. (CONTAINS: Acidic ester)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS: Acidic ester)
14.3. Transport hazard class(es)		
9	9	9
		
14.4. Packing group		
III	III	III

TUBALL MATRIX 814

Safety Data Sheet

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

IMDG	IATA	UNRTDG
14.5. Environmental hazards		
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, A215
ERG code (IATA)	: 9L

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

Not applicable

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	Distillates (petroleum), hydrotreated light paraffinic(64742-55-8)

15.2. International agreements

No additional information available

TUBALL MATRIX 814

Safety Data Sheet

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

SECTION 16: Other information

Version : 1.0
Issue date : 03/04/2023

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
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
NOAEL - No-Observed Adverse Effect Level
NOEC - No-Observed Effect Concentration
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

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
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H304	May be fatal if swallowed and enters airways
H319	Causes serious eye irritation
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
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

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.