

## 1. Chemical product and company identification

### 1.1. Product identifier

Product form	: Mixture
Trade name	: TUBALL MATRIX 603
Generic name	: TUBALL MATRIX 603
Type of product	: Nanoform embedded in a matrix
Product group	: Trade product

### 1.2. Recommended uses and restrictions

#### Use Categories

No data available

#### 1.2.1. Recommended use

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

#### 1.2.2. Restrictions on use

No data available

### 1.3. Supplier information

아시아:	중국:	인도:
OCSiAl 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@occsial.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@occsial.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@occsial.com

### 1.4. Emergency telephone number

<b>EMEA</b>	: +44 1865 407333 (English) (Carechem 24)
<b>East/South East Asia</b>	: +65 3158 1074 (English, Hindi, Japanese, Korean, Malay, Mandarin) (Carechem 24)
<b>China (Mainland)</b>	: **0532 8388 9090(English, Mandarin)

## 2. Hazards identification

### 2.1. Classification of the substance or mixture

Serious eye damage/eye irritation, Category 2 H319

### 2.2. Label elements

#### 2.2.1. Hazard pictograms (GHS KR)



#### 2.2.2. Signal word (GHS KR)

Warning.

#### 2.2.3. Hazard statements (GHS KR)

H319 - Causes serious eye irritation.

# TUBALL MATRIX 603

## Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130

### 2.2.4. Precautionary statements (GHS KR)

#### Precaution:

P264 - Wash hands thoroughly after handling.

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

#### Treatment:

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.

#### Storage:

#### Disposal:

### 2.3. Hazards - Other hazards which do not result in classification - Hazard Risk

No data available

## 3. Composition/information on ingredients

Product form : Mixture

Substance name	Other Names	Product identifier number	Concentration (%)
Distillates (petroleum), solvent refined heavy paraffinic	-	(CAS-No.) 64741-88-4	90
Single wall carbon nanotubes*	-	CAS-No.: Trade secret KECI-No.: Trade secret	10

Comments : \* Single wall carbon nanotubes TUBALL™.

## 4. First-aid measures

### 4.1. 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.

### 4.2. 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.

### 4.3. First-aid measures after inhalation

Remove person to fresh air and keep comfortable for breathing.

Get medical attention.

### 4.4. First-aid measures after ingestion

Rinse mouth out with water.

Do not induce vomiting.

Never give anything by mouth to an unconscious person.

Get medical attention.

### 4.5. Other medical advice or treatment

Treat symptomatically.

# TUBALL MATRIX 603

## Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130

### 5. Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : For large fire: Foam. Water fog. For small fire: Dry chemical. Carbon dioxide (CO2). Sand/earth. ABC-powder.

Unsuitable extinguishing media : Do not use a heavy water stream.

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

Fire hazard : Vapours may form explosive mixture with air. Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level. Flash back over considerable distance.

#### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Prevent fire fighting water from entering the environment.

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.

### 6. Accidental release measures

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

Wear suitable protective clothing.

Ventilate spillage area.

Ensure adequate ventilation.

Evacuate area.

Avoid contact with skin and eyes.

Avoid inhalation of vapours.

Do not touch or walk on the spilled product.

No open flames, no sparks, and no smoking.

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".

Evacuate unnecessary personnel.

Provide adequate ventilation.

Avoid contact with skin and eyes.

Avoid inhalation of vapours.

Collect spillage.

Dispose of materials or solid residues at an authorized site.

#### 6.2. Environmental precautions and protective procedures

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 material for containment and cleaning up

Clean spills promptly.

Ventilate affected area.

Stop leak if safe to do so.

Mechanically recover the product.

Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal.

Use non-sparking tools.

### 7. Handling and storage

#### 7.1. Precautions for safe handling

Ensure good ventilation of the work station.

# TUBALL MATRIX 603

## Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130

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.  
Take precautionary measures against static discharge.  
Wear personal protective equipment.  
Avoid contact with skin and eyes.  
Do not eat, drink or smoke when using this product.  
Wash contaminated clothing before reuse.  
Regular cleaning of equipment, work area and clothing.  
Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.  
Gloves must be periodically inspected and changed in case of wear, perforations or contaminations.  
Always wash hands after handling the product.

### 7.2. Conditions for safe storage

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.  
Strong oxidizing agents.  
Strong acids.  
Halogens.  
Keep away from open flames, hot surfaces and sources of ignition.  
No smoking.  
Store away from water (including sewage plant).  
Keep container tightly closed.

## 8. Exposure controls/personal protection

### 8.1. Occupational Exposure Limits

<b>TUBALL MATRIX 603</b>	
<b>Single wall carbon nanotubes</b>	
<b>Japan - Occupational Exposure Limits</b>	
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>
<b>Distillates (petroleum), solvent refined heavy paraffinic</b>	
No additional information available	

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.  
Environmental exposure controls : Avoid release to the environment.

### 8.3. Personal protection

**Personal protective equipment:**  
Safety glasses. Gloves. Protective clothing.

<b>Hand protection:</b>
Chemically resistant protective gloves

# TUBALL MATRIX 603

## Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves, Reusable gloves	Nitrile rubber (NBR)		≥ 0.11		

### Eye protection:

Chemical goggles or safety glasses

### Skin and body protection:

Protective clothing (with elasticated cuffs and closed neck). antistatic boots

### Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection. Wear a respirator with Type A/P2 filter or better

### Personal protective equipment symbol(s):



## 9. Physical and chemical properties

a) Appearance	: Viscous. Paste.
Physical state	: Solid.
Colour	: Black.
b) Odour	: Slight.
c) Odour threshold	: No data available
d) pH	: No data available
e) Melting / freezing point	: -60 – 0 (Distillates (petroleum), solvent refined heavy paraffinic)
f) Initial boiling point and boiling range	: 200 – 800 °C Distillates (petroleum), solvent refined heavy paraffinic
g) Flash point	: > 98 °C (Distillates (petroleum), solvent-refined heavy paraffinic)
h) Evaporation rate	: No data available
i) Flammability (solid, gas)	: Non flammable.
j) Upper / lower flammability or explosive limits	: Not applicable
k) Vapour pressure	: < 0.1 hPa at 20 °C (Distillates (petroleum), solvent refined heavy paraffinic)
l) Solubility	: No data available
m) Vapour density	: No data available
n) Relative density	: No data available
o) Partition coefficient n-octanol/water	: No data available
p) Auto-ignition temperature	: Not applicable
q) Decomposition temperature	: No data available
r) Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
s) Molecular mass	: No data available
<b>Other information</b>	
Density	: 0.81 – 0.97 g/cm <sup>3</sup> (Distillates (petroleum), solvent refined heavy paraffinic)
Explosive properties	: Not explosive.
Oxidising properties	: Non oxidizing

## 10. Stability and reactivity

### 10.1. Chemical stability and Possibility of hazardous reactions

Stable under normal conditions.

Stable under normal conditions.

None under normal use.

# TUBALL MATRIX 603

## Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130

### 10.2. Conditions to avoid

Take precautionary measures against static discharges.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

### 10.3. Incompatible materials

Strong oxidizing agents.  
Strong acids.  
Halogens.

### 10.4. Hazardous decomposition products

Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases.

## 11. Toxicological information

### 11.1. Information on exposure routes

Oral : Not classified  
Skin and eyes contact : Causes serious eye irritation.  
Inhalation : Not classified

### 11.2. Health hazards

#### Acute toxicity (oral):

Not classified

#### Acute toxicity (dermal):

Not classified

#### Acute toxicity (inhalation):

Not classified

Distillates (petroleum), solvent refined heavy paraffinic	
LD50 oral rat	> 5000 mg/l (OECD 401)
LD50 dermal rabbit	> 2000 mg/kg (OECD 402)
LC50 Inhalation - Rat	> 5000 mg/m <sup>3</sup> (OECD 403)

#### Skin corrosion/irritation:

Not classified

#### Serious eye damage/irritation:

Causes serious eye irritation.

#### Respiratory sensitization:

Not classified

#### Skin sensitization:

Not classified

#### Carcinogenicity:

Not classified

#### Mutagenicity:

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

# TUBALL MATRIX 603

## Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130

NOAEL (animal, F1)	> 1000 mg/kg bw/day - for adverse effects on postnatal development (pup) - OECD 422
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### STOT-single exposure:

Not classified

### STOT-repeated exposure:

Not classified

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

## 12. Ecological information

### 12.1. Ecotoxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

### 12.2. Persistence and degradability

Distillates (petroleum), solvent refined heavy paraffinic	
Biodegradation	31 % - 28 days - OECD 301B-301F

### 12.3. Bioaccumulative potential

No data available

### 12.4. Mobility in soil

No data available

### 12.5. Other adverse effects

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

## 13. Disposal considerations

### 13.1. Disposal method

Dispose of this material and its container at hazardous or special waste collection point.  
Dispose of contents/container in accordance with licensed collector's sorting instructions.

### 13.2. Disposal precaution

Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.  
Prevent entry to sewers and public waters.  
Clean up even minor leaks or spills if possible without unnecessary risk.

# TUBALL MATRIX 603

## Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130

### 14. Transport information

UN RTDG	ADR	IMDG	IATA
<b>14.1. UN number</b>			
Not regulated for transport			
<b>14.2. UN proper shipping name</b>			
Not applicable	Not applicable	Not applicable	Not applicable
<b>14.3. Transport hazard class(es)</b>			
Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable
<b>14.4. Packing group</b>			
Not applicable	Not applicable	Not applicable	Not applicable
<b>14.5. Marine pollutant</b>			
Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No
No supplementary information available			

### 14.6. Special precautions for user

No data available

### 15. Regulatory information

#### 15.1. Occupational Safety and Health Act

Hazardous Substances Prohibited for Manufacturing	Not applicable
Hazardous Substances Requiring Permission	Not applicable
Threshold Limit Values Chemicals	Not applicable
Hazardous Substances Below Permissible Level	Not applicable
Hazardous Substances Subject to Working Environment Measurement	Not applicable
Hazardous Substances Subject to Workers Requiring Health Examination	Not applicable
Hazardous Substances Subject to Control	Not applicable
Substance Subject to Submission of PSM	Not applicable

#### 15.2. Chemicals Control Act

Toxic Chemicals	Not applicable
Prohibited Chemicals	Not applicable
Restricted Chemicals	Not applicable
Substance requiring preparation for accidents	Not applicable

#### 15.3. Act on Registration and Evaluation of Chemicals (K-REACH)

Korea Existing Chemicals Inventory (MOE, Korea)	Graphite -> Single wall carbon nanotubes. Listing of country or region list name (yes/no) * Korea Inventory of Existing Chemicals (ECL) Yes **Yes* indicates that all ingredients in this product comply with the inventory requirements of the country(s) Indicates that there is no exemption. Distillates (petroleum), solvent refined heavy paraffinic
Priority Existing Chemical ('PEC') – subject to registration	Not applicable
Substances Subject to Intensive Control (MOE, Korea) (Korea)	Not applicable



# TUBALL MATRIX 603

## Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130

CMR Substances (Korea) Not applicable

### 15.4. Safety Control of Dangerous Substances Act

Safety Control of Dangerous Substances Act

### 15.5. Wastes Control Act

Hazardous Substances in Designated wastes

### 15.6. Other Domestic and International Regulatory Information

#### Domestic

Persistent Organic Pollutants(POPs) Control Act Not applicable  
Ozone Depleting Substances(ODS) Not applicable

#### International

#### EU Regulatory Information

EU Candidate list (SVHC) Contains no substance(s) listed on the REACH Candidate List  
EU authorization list (REACH Annex XIV) Contains no substance(s) listed on REACH Annex XIV (Authorisation List)  
EU restriction list (REACH Annex XVII) Applicable

#### US Regulatory Information

CERCLA Section 103 (40CFR302.4) Not applicable  
EPCRA Section 302 (40CFR355.30) Not applicable  
EPCRA Section 304 (40CFR355.40) Not applicable  
EPCRA Section 313 (40CFR372.65) Not applicable

#### International agreements

No data available

### 16. Other information

16.1. Data sources: No data available  
16.2. Issue date: 2023/04/12  
16.3. Revision number and date: 1.0,  
16.4. Other information: No data available  
16.5. Indication of changes: See bold triangle '▶'

#### 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	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	European Community number
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods

# TUBALL MATRIX 603

## Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130

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
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.

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TUBALL MATRIX 603