

1. Chemical product and company identification ►

1.1. Product identifier

Product form	: Mixture
Product name	: TUBALL MATRIX 204
Generic name	: TUBALL MATRIX 204
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

유럽:	미국:	아시아:	중국:	인도:
OCSiAI Europe S.a.r.l. L-3364, Leudelange, 1, rue de la Poudrerie, Grand Duchy of Luxembourg	OCSiAI LLC 500 S Front St., Suite 860, Columbus, OH 43215, USA	OCSiAI Asia Pacific Co., Ltd. Office 208, Pilot Plant Bldg., Incheon Technopark 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840 Republic of Korea	OCSiAI Hong Kong Limited No. 1102, 11/F, Lippo Sun Plaza, 28 Canton Road, Tsim Sha Tsui, Kowloon, Hong Kong	VIMAL INTERTRADE PVT LTD. Shivam Centrum, Sahar Road, Koldongri, Above Nexa Showroom, Andheri East, Mumbai – 400 069
T +352 27 99 03 73 09.00-17.00 GMT+2 europe@ocsial.com	T +1 415 906 5271 09.00-17.00 GMT-4 usa@ocsial.com	T +82 32 260 0407 09.00-17.00 GMT+9 asiapacific@ocsial.com	T +852 3575 3946 09:00-17:00; GMT+8 china@ocsial.com	T +91 22 6288 4200 09:00-17:00; GMT+5.5 india@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)
China (Mainland)	: **0532 8388 9090(English, Mandarin)

2. Hazards identification

2.1. Classification of the substance or mixture

Pyrophoric Solids, Not classified	
Self-heating Substances and Mixtures, Not classified	
Substances and mixtures which in contact with water emit flammable gases Not classified	
Oxidising Solids, Not classified	
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

2.2.1. Hazard pictograms (GHS KR)



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2.2.2. Signal word (GHS KR)

Warning.

2.2.3. Hazard statements (GHS KR)

H317 - May cause an allergic skin reaction.

H319 - Causes serious eye irritation.

H411 - Toxic to aquatic life with long lasting effects.

2.2.4. Precautionary statements (GHS KR)

Precaution:

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray. dust, fume.

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 protective gloves/protective clothing/eye protection/face protection. protective gloves, eye protection, protective clothing, respiratory protection.

Treatment:

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.

P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.

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

P362+P364 - Take off contaminated clothing and wash it before reuse.

P391 - Collect spillage.

Storage:

Disposal:

P501 - Dispose of contents/container according to waste related regulations.

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

None under normal conditions

3. Composition/information on ingredients ►

Product form : Mixture

Substance name	Other Names	Product identifier number	Concentration (%)
Triethylene glycol dimethacrylate	Triethylene glycol dimethacrylate / Methacrylic acid, diester with triethylene glycol	CAS-No.: 109-16-0	80
Single wall carbon nanotubes*	-	CAS-No.: 7782-42-5 KECI-No.: KE-18101	10
Alkylolammonium salt	-	CAS-No.: 398475-96-2	3 – 5
Polymer	-	Trade secret	5 – 7

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.

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Get medical 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.

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.
Get medical attention.

4.5. Other medical advice or treatment

Treat symptomatically.

5. Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Powder, Alcohol-resistant foam, Water spray, Carbon dioxide (CO₂).
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.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Full face mask. Positive pressure self-contained breathing apparatus (SCBA).

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear suitable protective clothing.
Ensure adequate ventilation.
Evacuate area.
Wear suitable protective clothing, gloves and eye/face protection.
In case of fire: Positive pressure self-contained breathing apparatus (SCBA).
Provide adequate ventilation.
Evacuate area.
Avoid inhalation of vapours.

6.2. Environmental precautions and protective procedures

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.
Clear up rapidly by scoop or vacuum.
Collect in closed container and remove to a safe place for disposal by burning.

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7. Handling and storage

7.1. Precautions for safe handling

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.
Do not eat, drink or smoke when using this product.
Wash contaminated clothing before reuse.

7.2. Conditions for safe storage

Store in dry, cool, well-ventilated area.
Keep container tightly closed.
Protect from sunlight.
Keep away from open flames, hot surfaces and sources of ignition.
Store away from water (including sewage plant).
Storage temperature : -40 / +40°C

8. Exposure controls/personal protection ►

8.1. Occupational Exposure Limits

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Triethylene glycol dimethacrylate	
Single wall carbon nanotubes (7782-42-5)	
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
Alkylolammonium salt	
Polymer	
No additional information available	

8.2. Appropriate engineering controls

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

8.3. Personal protection

Personal protective equipment:

Gloves. Safety glasses. Protective clothing.

Hand protection:					
Wear suitable gloves.					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves, Disposable gloves	Chloroprene rubber (CR)	3 (> 60 minutes)	0.6		
Disposable gloves, Reusable gloves	Butyl rubber	3 (> 60 minutes)	0.5		
Disposable gloves, Reusable gloves	Neoprene rubber (HNBR)	5 (> 240 minutes)	1.1		

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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.

Device	Filter type	Condition	Standard
Gas mask	Filter A2	Long term exposure	

Personal protective equipment symbol(s):



9. Physical and chemical properties

a) Appearance	: Flakes. Pasty.
Physical state	: Solid.
Colour	: Black.
b) Odour	: Characteristic.
c) Odour threshold	: No data available
d) pH	: No data available
e) Melting / freezing point	: /
f) Initial boiling point and boiling range	: No data available
g) Flash point	: > 150 °C (Triethylene glycol dimethacrylate)
h) Evaporation rate	: No data available
i) Flammability (solid, gas)	: No data available
j) Upper / lower flammability or explosive limits	: No data available
k) Vapour pressure	: No data available
l) Solubility	: Insoluble in water.
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	: 255 °C (Triethylene glycol dimethacrylate)
q) Decomposition temperature	: No data available
r) Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
s) Molecular mass	: No data available
Other information	
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.
None known.

10.2. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition.

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10.3. Incompatible materials

Oxidizing agent.
Reducing agents.

10.4. Hazardous decomposition products

Carbon dioxide.
Carbon monoxide.
Irritating vapours.

11. Toxicological information

11.1. Information on exposure routes

Oral : Not classified
Skin and eyes contact : Causes serious eye irritation. May cause an allergic skin reaction.
Inhalation : Not classified

11.2. Health hazards

Acute toxicity (oral):

Not classified

Acute toxicity (dermal):

Not classified

Acute toxicity (inhalation):

Not classified

Triethylene glycol dimethacrylate

LD50 oral rat	> 2000 mg/kg
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Alkylolammonium salt

LD50 oral rat	> 5000 mg/kg
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Skin corrosion/irritation:

Not classified

Serious eye damage/irritation:

Causes serious eye irritation.

Respiratory sensitization:

Not classified

Skin sensitization:

May cause an allergic skin reaction.

Carcinogenicity:

Not classified

Mutagenicity:

Not classified

Reproductive toxicity:

Not classified

STOT-single exposure:

Not classified

STOT-repeated exposure:

Not classified

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

Single wall carbon nanotubes (7782-42-5)	
NOAEL (oral, rat, 90 days)	> 1000 mg/kg bodyweight/day - OECD 422

Aspiration hazard:

Not classified

12. Ecological information

12.1. Ecotoxicity

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.

Triethylene glycol dimethacrylate	
LC50 fish - 96h	16.4 mg/l Brachydanio rerio (zebra-fish)
EC50 algae - 72h	> 100 mg/l Pseudokirchneriella subcapitata
EC50 72h algae	72.8 mg/l Pseudokirchneriella subcapitata
LOEC (chronic)	100 mg/l Daphnia magna (Water flea), 21 days
NOEC (chronic)	32 mg/l Daphnia magna (Water flea), 21 days
Partition coefficient n-octanol/water (Log Pow)	2.3 - OECD 117

Alkyolammonium salt	
LC50 fish - 96h	8 mg/l Oncorhynchus mykiss (Rainbow trout) - OECD 203
ErC50 algae - 72h	> 1 mg/l Pseudokirchneriella subcapitata - OECD 201

12.2. Persistence and degradability

No data available

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.

Disposal through controlled incineration or authorised waste dump.

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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.

14. Transport information

UN RTDG	ADR	IMDG	IATA
14.1. UN number			
3077	3077	3077	3077
14.2. UN proper shipping name			
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)	Environmentally hazardous substance, solid, n.o.s. (CONTAINS : Alkylolammonium salt)
14.3. Transport hazard class(es)			
9	9	9	9
			
14.4. Packing group			
III	III	III	III
14.5. Marine pollutant			
Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes
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

15.2. Chemicals Control Act

Toxic Chemicals	Not applicable
Prohibited Chemicals	Not applicable
Restricted Chemicals	Not applicable

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Substance requiring preparation for accidents Not applicable

15.3. ACT ON REGISTRATION, EVALUATION, ETC. OF CHEMICALS (K-REACH) ►

Korea Existing Chemicals Inventory (KECI)	KECI-No. : KE-24994. Triethylene glycol dimethacrylate KECI-No. : KE-18101. 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. KECI-No. : 2011-3-5132. Alkylolammonium salt
Priority Existing Chemical ('PEC') – subject to registration	Not applicable
Priority Control Substances (Korea)	Not applicable
CMR Substances (Korea)	Not applicable

15.4. Safety Control of Dangerous Substances Act

Safety Control of Dangerous Substances Act Triethylene glycol dimethacrylate

15.5. Wastes Control Act

Wastes Control Act

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 on the REACH candidate list
EU authorization list (REACH Annex XIV)	Contains no REACH Annex XIV substances
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:	02/06/2020
16.3. Revision number and date:	2.0, 17/06/2021
16.4. Other information:	None.
16.5. Indication of changes:	See bold triangle '►'.

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.

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
WGK	Water Hazard Class
OEL	Occupational Exposure Limit

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EC-No.	European Community number
vPvB	Very Persistent and Very Bioaccumulative
SDS	Safety Data Sheet
CAS-No.	Chemical Abstract Service number
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
BLV	Biological limit value
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
N.O.S.	Not Otherwise Specified
NOEC	No-Observed Effect Concentration
TLM	Median Tolerance Limit
LD50	Median lethal dose
LC50	Median lethal concentration
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
DMEL	Derived Minimal Effect level
OECD	Organisation for Economic Co-operation and Development
IOELV	Indicative Occupational Exposure Limit Value
STP	Sewage treatment plant
EN	European Standard
PNEC	Predicted No-Effect Concentration
DNEL	Derived-No Effect Level
ATE	Acute Toxicity Estimate
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
IARC	International Agency for Research on Cancer
EC50	Median effective concentration
PBT	Persistent Bioaccumulative Toxic
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
VOC	Volatile Organic Compounds

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