

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

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

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Industrial use as additive in polymers, resins and/or coatings

1.2.2. Uses advised against

No additional information available

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

Europe:
OCSiAl Europe S.a.r.l.
L-3364, Leudelange,
1, rue de la Poudrerie,
Grand Duchy of
Luxembourg
T +352 27 99 03 73
09.00-17.00 GMT+2
europe@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 Regulation (EC) No. 1272/2008 [CLP]

Serious eye damage/eye irritation, Category 2 H319
Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS07

Signal word (CLP) : Warning
Hazard statements (CLP) : H319 - Causes serious eye irritation.
Precautionary statements (CLP) : P264 - Wash hands thoroughly after handling.
P280 - Wear eye protection, protective clothing, protective gloves.
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.

2.3. Other hazards ►

Contains no PBT/vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

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according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Distillates (petroleum), solvent refined heavy paraffinic	(CAS-No.) 64741-88-4 (EC-No.) 265-090-8 (EC Index-No.) 649-454-00-7 (REACH-No.) 01-2119488706-23	90	Not classified– Note L
Single wall carbon nanotubes*	(CAS-No.) Not assigned for EU-REACH (EC-No.) 231-153-3 (REACH-No.) 01-2120130006-75-0000	10	Eye Irrit. 2, H319

*Single wall carbon nanotubes TUBALL™		
Name of (set of) nanoform(s)		Tuball™ - grades 1RW02 / 1RW03 are part of one set of nanoform
Value		-
Number based particle size distribution	d10	1.2 - 1.45 nm
	d50	1.6 - 1.8 nm
	d90	1.9 - 2.2 nm
Shape and aspect ratio of particles		Elongated tubes; length to diameter ratio 2000 – 10000:1
Crystallinity		Amorphous
Surface functionalisation / treatment		No
Process		Chemical vapor deposition (CVD)
Specific surface area		300 – 1500 m ² /g
Additional information		G/D range ≥ 40 (RAMAN at 532 nm)

Note L : The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3 % of dimethyl sulphoxide extract as measured by IP 346 ('Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions – Dimethyl sulphoxide extraction refractive index method' Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

* Single wall carbon nanotubes TUBALL™

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of 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.
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. Never give anything by mouth to an unconscious person. Get medical attention.

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

Symptoms/effects after inhalation	: May cause respiratory irritation. Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination.
Symptoms/effects after skin contact	: Prolonged or repeated contact may cause skin to become dry. Contact during a long period may cause light irritation.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: Ingestion may cause nausea and vomiting. Diarrhea. Gastrointestinal complaints.

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

Treat symptomatically.

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SECTION 5: Firefighting measures

5.1. 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.
- Hazardous decomposition products in case of fire : Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases.

5.3. Advice for firefighters

- Firefighting instructions : Prevent fire fighting water from entering the environment.
- Protection during firefighting : Full face mask. Positive pressure self-contained breathing apparatus (SCBA).

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 : 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.

6.1.2. For emergency responders

- Protective equipment : Wear suitable protective clothing, gloves and eye/face protection. In case of fire: Positive pressure self-contained breathing apparatus (SCBA).
- Emergency procedures : Evacuate unnecessary personnel. Provide adequate ventilation. Avoid contact with skin and eyes. Avoid inhalation of vapours. Collect spillage.

6.2. Environmental precautions

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

- For containment : Clean spills promptly. Ventilate affected area. Stop leak if safe to do so.
- Methods for cleaning up : Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Use non-sparking tools.

6.4. Reference to other sections ►

For further information refer to section 8: "Exposure controls/personal protection". For disposal of contaminated materials refer to section 13 : "Disposal considerations".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- 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. To prevent thermal burns avoid contact with hot product. 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. 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.

7.2. Conditions for safe storage, including any incompatibilities ►

- Storage conditions : Store in dry, well-ventilated area. Store at ambient temperature. Keep container tightly closed. Protect from sunlight.
- Incompatible products : Strong oxidizing agents. Strong acids. Halogens.
- Heat and ignition sources : Keep away from open flames, hot surfaces and sources of ignition. No smoking.
- Information on mixed storage : Store away from water (including sewage plant).
- Special rules on packaging : Keep container tightly closed.

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7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Distillates (petroleum), solvent refined heavy paraffinic	
Bulgaria - Occupational Exposure Limits	
OEL TWA	5 mg/m ³
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	5 mg/m ³
NPK-P (OEL C)	10 mg/m ³
Denmark - Occupational Exposure Limits	
OEL TWA [1]	1 mg/m ³
Finland - Occupational Exposure Limits	
HTP (OEL TWA) [1]	5 mg/m ³
Greece - Occupational Exposure Limits	
OEL TWA	5 mg/m ³
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	5 mg/m ³
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	5 mg/m ³
Portugal - Occupational Exposure Limits	
OEL TWA	5 mg/m ³
Romania - Occupational Exposure Limits	
OEL TWA	5 mg/m ³
OEL STEL	10 mg/m ³
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA) [1]	1 mg/m ³
NPHV (OEL TWA) [2]	5 ppm
NPHV (OEL STEL)	3 mg/m ³
NPHV (OEL STEL) [ppm]	15 ppm
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA) [1]	5 mg/m ³
VLA-EC (OEL STEL)	10 mg/m ³
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	1 mg/m ³
KTV (OEL STEL)	3 mg/m ³
Norway - Occupational Exposure Limits	
Grønseverdi (OEL TWA) [1]	1 mg/m ³

Single wall carbon nanotubes	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	No hazard identified
Acute - systemic effects, inhalation	Low hazard (no threshold identified)
Acute - local effects, dermal	No hazard identified
Acute - local effects, inhalation	Low hazard (no threshold identified)
Long-term - systemic effects, dermal	No hazard identified
Long-term - local effects, dermal	No hazard identified
Long-term - local effects, inhalation	Low hazard (no threshold identified)
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	No hazard identified

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Acute - systemic effects, inhalation	Low hazard (no threshold identified)
Acute - systemic effects, oral	No hazard identified
Acute - local effects, dermal	No hazard identified
Acute - local effects, inhalation	No hazard identified
Long-term - systemic effects, dermal	No hazard identified
Long-term - local effects, dermal	No hazard identified
Long-term - local effects, inhalation	No hazard identified
PNEC (Water)	
PNEC aqua (freshwater)	No hazard identified
PNEC aqua (marine water)	No hazard identified
PNEC (Sediment)	
PNEC sediment (freshwater)	No hazard identified
PNEC sediment (marine water)	No hazard identified
PNEC (Soil)	
PNEC soil	No hazard identified
PNEC (Oral)	
PNEC oral (secondary poisoning)	No potential to cause toxic effects if accumulated (in higher organisms) via the food chain
PNEC (STP)	
PNEC sewage treatment plant	No data available: testing technically not feasible

8.2. Exposure controls ►

Personal protective equipment:

Safety glasses. Gloves. Protective clothing.

Hand protection:

Chemically resistant protective gloves

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves, Reusable gloves	Nitrile rubber (NBR)		≥ 0.11		EN 374

Eye protection:

Chemical goggles or safety glasses. Standard EN 166 - Personal eye-protection.

Skin and body protection:

Protective clothing (with elasticated cuffs and closed neck). EN 14605. antistatic boots

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection. Wear a respirator conforming to EN140 with Type A/P2 filter or better

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties ►

Physical state	: Solid
Appearance	: Viscous. Paste.
Colour	: Black.
Odour	: Slight.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -60 – 0 (Distillates (petroleum), solvent refined heavy paraffinic)
Freezing point	: No data available
Boiling point	: 200 – 800 °C (Distillates (petroleum), solvent refined heavy paraffinic)

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Flash point	: > 98 °C (Distillates (petroleum), solvent-refined heavy paraffinic)
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability	: No data available
Vapour pressure	: < 0.1 hPa at 20 °C (Distillates (petroleum), solvent refined heavy paraffinic)
Relative vapour density at 20°C	: No data available
Relative density	: No data available
Density	: 0.81 – 0.97 g/cm ³ (Distillates (petroleum), solvent refined heavy paraffinic)
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: 447 mm ² /s (Distillates (petroleum), solvent refined heavy paraffinic)
Viscosity, dynamic	: No data available
Explosive properties	: Not explosive.
Oxidising properties	: Non oxidizing.
Explosive limits	: No data available

Single wall carbon nanotubes

Particle size	Not available
Particle size distribution	Not available
Particle shape	Not available
Particle aspect ratio	Not available
Particle aggregation state	Bundles of nanotubes
Particle agglomeration state	Single wall carbon nanotubes are embedded in a matrix
Particle specific surface area	Not available
Particle dustiness	1660 mg/kg (DIRM - Single wall carbon nanotubes)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None under normal use.

10.4. Conditions to avoid

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

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Halogens.

10.6. Hazardous decomposition products

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

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.

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 ³ (OECD 403)

Skin corrosion/irritation	: Not classified.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified.

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Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Additional information	: Distillates (petroleum), solvent-refined heavy paraffinic (CAS n. 64741-88-4): Classified based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L)
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

Single wall carbon nanotubes

NOAEL (oral, rat, 90 days)	no adverse effects seen at highest dose tested > 1000 mg/kg bodyweight/day - OECD 422
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Aspiration hazard	: Not classified.
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SECTION 12: Ecological information ►

12.1. Toxicity

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
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12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component

Single wall carbon nanotubes	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
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12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Dispose of this material and its container at hazardous or special waste collection point.
Waste treatment methods	: Disposal through controlled incineration or authorised waste dump.
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.
European List of Waste (LoW) code	: 06 13 99 - wastes not otherwise specified

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

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according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

14.2. UN proper shipping name

Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
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14.3. Transport hazard class(es)

Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
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14.4. Packing group

Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
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14.5. Environmental hazards

Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
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No supplementary information available

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Listed on REACH Annex XVII (Restriction Conditions). The following restrictions are applicable:

Reference code	Applicable on	Entry title or description
3(b)	TUBALL MATRIX 603	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10

Contains no substance(s) listed on the REACH Candidate List

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Other information, restriction and prohibition regulations : EN 16143:2013 Petroleum products - Determination of content of Benzo(a)pyrene (BaP) and selected polycyclic aromatic hydrocarbons (PAH) in extender oils according to Annex XVII to the REACH Regulation (EC) No 1907/2006, entry 50:
Benzo[a]pyrene (BaP): < 1mg/kg
8 PAH (Polycyclic aromatic hydrocarbons): <10 mg/kg.

15.1.2. National regulations ►

Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG)
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG)

Water hazard class (WGK) : WGK 1, Slightly hazardous to water (Classification according to AwSV, Annex 1)

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen : Distillates (petroleum), solvent refined heavy paraffinic is listed

SZW-lijst van mutagene stoffen : Distillates (petroleum), solvent refined heavy paraffinic is listed

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SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed
 SZW-lijst van reprotoxische stoffen – : None of the components are listed
 Vruchtbaarheid
 SZW-lijst van reprotoxische stoffen – Ontwikkeling : None of the components are listed

Denmark

Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed
 Danish National Regulations : Young people below the age of 18 years are not allowed to use the product
 Pregnant/breastfeeding women working with the product must not be in direct contact with the product

Switzerland

Storage class (LK) : LK 11/13 - Solids

15.2. Chemical safety assessment ►

For the following substances of this mixture a chemical safety assessment has been carried out

Single wall carbon nanotubes

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
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

Full text of H- and EUH-statements:

Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H319	Causes serious eye irritation.

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.

SDS EU (REACH Annex II) OCSiAl

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