SAFETY DATA SHEET

OXSOFT TOTM
11390

Version / Revision	6.01	**Revision Date**	25-Sep-2018
Supersedes Version	6.00	**Issuing date**	25-Sep-2018

SECTION 1: Identification

1.1. Product identifier

Identification of the substance/preparation **OXSOFT TOTM**

Chemical Name Trioctyl trimellitate
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate

CAS-No 3319-31-1

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

Use of the Substance / Preparation plasticizer

Uses advised against None

1.3. Details of the supplier of the safety data sheet

Supplier
OXEA Corporation
1505 West LBJ Freeway, Suite 400
Dallas, TX 75234
USA
Phone: +1 972 481 2700

Product Information
Product Stewardship
FAX: +49 (0)208 693 2053
email: psq@oxea-chemicals.com

1.4. Emergency telephone number

Emergency telephone number
in USA, call 800 424 9300
outside USA, call +1.703.527.3887, collect calls accepted
available 24/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This substance is not hazardous in accordance with paragraph (d) of §1910.1200 (GHS-US classification).

OSHA Specified Hazards Not applicable.

2.2. Label elements

Not required according to §1910.1200 (GHS-US labeling).

2.3. Other hazards

None known

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	Concentration (%)
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate	3319-31-1	> 96,0

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Skin
Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Ingestion
Call a physician immediately. Do not induce vomiting without medical advice.

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

Main symptoms
None known.

Special hazard
None known.

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

General advice
Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
foam, dry chemical, carbon dioxide (CO2), water spray

Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Under conditions giving incomplete combustion, hazardous gases produced may consist of:
carbon monoxide (CO)
carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Vapours are heavier than air and may spread along floors

5.3. Advice for firefighters

Special protective equipment for firefighters
Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for firefighting
Cool containers / tanks with water spray. Dike and collect water used to fight fire. Keep people away from and upwind of fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.
For emergency responders: Personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant).

6.3. Methods and material for containment and cleaning up

Methods for containment
Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. If liquid has been spilt in large

quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

6.4. Reference to other sections

For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Advice on the protection of the environment
See Section 8: Environmental exposure controls.

Incompatible products
strong oxidizing agents
strong acids

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion
Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material.

Technical measures/Storage conditions
Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care.

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits United States of America

No exposure limits established regarding ACGIH, OSHA Z-1 and OSHA Z-2.

8.2. Exposure controls

Appropriate Engineering controls
General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local

ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Individual protection measures, such as personal protective equipment

General industrial hygiene practice
Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Eye protection
Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Hand protection
Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Suitable material	nitrile rubber
Reference substance	Di-(2-ethylhexyl)-phthalate
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,55 mm
Break through time	> 480 min

Suitable material	polyvinylchloride / nitrile rubber
Reference substance	Di-(2-ethylhexyl)-phthalate
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,9 mm
Break through time	> 480 min

Skin and body protection
Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Respiratory protection
Respirator with filter for organic vapour. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Equipment should conform to NIOSH.

Environmental exposure controls
If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid
Colour	light yellow
Odour	weak
Odour threshold	No data available
pH	No data available
Melting point/range	-45 °F (-43 °C)
Method	ASTM D 97-02
Boiling point/range	671 °F (355 °C) @ 1 atm (101,3 kPa)
Method	OECD 103
Flash point	435 °F (224 °C) @ 1013 hPa
Method	ASTM D-93
Evaporation rate	No data available
Flammability (solid, gas)	Does not apply, the substance is a liquid
Lower explosion limit	0,3 Vol %
Upper explosion limit	2,5 Vol %

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
0,2	0,02	< 0,001	200	392	OECD 104
< 0,001	< 0,001	< 0,001	20	68	OECD 104

Vapour density No data available

Relative density

Values	@ °C	@ °F	Method
0,9885	20	68	OECD 109

Solubility	3,06 µg/l @ 77 °F (25 °C), in water, OECD 105
log Pow	8,0 (measured) OECD 123
Autoignition temperature	770 °F (410 °C)
Decomposition temperature	No data available
Viscosity	312,64 mm²/s @ 68 °F (20 °C)
Method	kinematic, OECD 114

9.2. Other information

Molecular weight	546,79
Molecular formula	C33 H54 O6
log Koc	23 @ 20 °C OECD 121
Oxidizing properties	Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties
Conductivity	0,015 µS/m @ 68 °F (20 °C)
Refractive Index	1,485 @ 68 °F (20 °C)
Explosive properties	Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties

SECTION 10: Stability and Reactivity

10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

10.5. Incompatible materials

strong acids.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure Ingestion, Inhalation, Eye contact, Skin contact

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1
Target Organ Systemic Toxicant - Single exposure
no data available
Target Organ Systemic Toxicant - Repeated exposure
no data available

Acute toxicity				
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	> 2000 mg/kg	rat	OECD 401
Dermal	LD50	> 2 ml/kg	rabbit	FIFRA part 163, title 40
Inhalative	LC50	> 2600 mg/m³ (4h)	rat	aerosol OECD 403

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1
Assessment
Based on available data, the classification criteria are not met for:
Acute oral toxicity
Acute dermal toxicity
Acute inhalation toxicity

Irritation and corrosion				
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	No skin irritation	16 CFR P124	
Eyes	rabbit	No eye irritation	16 CFR P125	

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1
Assessment
Based on available data, the classification criteria are not met for:
skin irritation/corrosion
eye irritation/corrosion
For respiratory irritation, no data are available

Sensitization				
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)				
Target Organ Effects	Species	Evaluation	Method	
Skin	guinea pig	not sensitizing	OECD 406	

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1
Assessment
Based on available data, the classification criteria are not met for:
Skin sensitization
For respiratory sensitization, no data are available

Subacute, subchronic and prolonged toxicity				
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)				
Type	Dose	Species	Method	
Subacute toxicity	NOEL: 1000 mg/kg/d	rat, male/female	OECD 407	Oral
Subchronic toxicity	NOAEL: 225 mg/kg/d (90d)	rat, male/female	OECD 408	Oral
Subchronic toxicity	LOAEL: 1000 mg/kg/d (90d)	rat, male/female	OECD 408	Oral

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1
Assessment
Based on available data, the classification criteria are not met for:
STOT RE

Carcinogenicity, Mutagenicity, Reproductive toxicity					
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity		human lymphocytes	negative	OECD 473 (Chromosomal Aberration)	In vitro study
Mutagenicity		mouse	negative	Chromosomal	in vivo

				Aberration	
Reproductive toxicity	NOAEL 100 mg/kg/d	rat, parental, male		OECD 421 Oral	Fertility
Reproductive toxicity	NOAEL 1000 mg/kg/d	rat, 1. Generation, male/female		OECD 421 Oral	Developmental toxicity
Reproductive toxicity	NOAEL 500 mg/kg/d	rat, parental, male		OECD 422 Oral	Fertility
Reproductive toxicity	NOAEL 500 mg/kg/d	rat, 1. Generation, male/female		OECD 422 Oral	Developmental toxicity
Teratogenicity	NOAEL 1050 mg/kg/d	rat		OECD 414, Oral	Developmental toxicity
Mutagenicity		mouse lymphoma cells	negative	OECD 476 (Mammalian Gene Mutation)	In vitro study
Carcinogenicity	No data available				

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1

CMR Classification

The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B

Evaluation

In vitro tests did not show mutagenic effects
Did not show mutagenic effects in animal experiments
In the absence of specific alerts no cancer testing is required

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1

Aspiration toxicity

no data available

Note

Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:
http://echa.europa.eu/information-on-chemicals/registered-substances.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity			
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)			
Species	Exposure time	Dose	Method
Fish (fresh water)	96 d	LC50: >100 mg/l	OECD 203
Daphnia magna (Water flea)	48h	NOEC: > 180 mg/l	OECD 202
Pseudokirchneriella subcapitata	72h	EC50: 100 mg/l	OECD 201
Activated sludge (bacteriae)	3 h	NOEC: 1000 mg/l	OECD 209

Long term toxicity				
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)				
Type	Species	Dose	Method	

Reproductive toxicity	Daphnia magna (Water flea)	NOEC: 55,6 mg/l (21d)	OECD 211	
Reproductive toxicity	Daphnia magna (Water flea)	EC50: 89,1 mg/l/21d	OECD 211	
Aquatic toxicity	Fish Oryzias latipes (Medaka)	NOEC: > 75 mg/l (14d)	OECD 204	
Aquatic toxicity	Algae Pseudokirchneriella subcapitata	NOEC: 100 mg/l (3d)	OECD 201	

Sediment toxicity				
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)				
Species	Exposure time	Dose	Type	Method
Midge Chironomus riparius	28 d	NOEC: 740 mg/kg sediment dw	Emergence rate	OECD 218

Terrestrial toxicity				
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)				
Species	Exposure time	Dose	Type	Method
Earthworm Eisenia fetida	14 d	LC10: > 1000 mg/kg soil dw	Mortality	EU Method C.8 read across
Plant Triticum aestivum	18 d	LC50: 100 mg/kg soil dw	Seeding emergence	OECD 208 read across
Plant Triticum aestivum	18 d	EC50: 100 mg/kg soil dw	Growth	OECD 208 read across
Plant Brassica alba	17 d	LC50: 100 mg/kg soil dw	Seeding emergence	OECD 208 read across
Plant Brassica alba	17 d	LC50: 100 mg/kg soil dw	Growth	OECD 208 read across
Plant Lepidum Sativum	18 d	LC50: .? mg/kg soil dw	Seeding emergence	OECD 208 read across
Plant Lepidum Sativum	18 d	EC50: 100 mg/kg soil dw	Growth	OECD 208 read across

12.2. Persistence and degradability

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1
Biodegradation
< 20 % (28 d), activated sludge, aerobic, OECD 301 D.

Abiotic Degradation		
Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)		
Type	Result	Method
Hydrolysis	t1/2 (pH 7): 15,7 yr @ 25°C	
Photolysis	No data available	

12.3. Bioaccumulative potential

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)		
Type	Result	Method
log Pow	8,0	measured, OECD 123
BCF	< 2,7 @ 0,2 mg/l	OECD 305 C

12.4. Mobility in soil

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate (3319-31-1)		
Type	Result	Method
Adsorption/Desorption	log Koc: 23 @ 20 °C	OECD 121
Surface tension	Surface activity not expected	
Distribution to environmental compartments	Air: 0,445 % Soil: 4,99 % Water: 33,7 % Sediment: 60,9 %	Calculation according Mackay, Level III

12.5. Results of PBT and vPvB assessment

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1
PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

12.6. Other adverse effects

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1
No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product Information
Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Uncleaned empty packaging
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

SECTION 14: Transport information

Section 14.1 - 14.6

D.O.T. (49CFR)	Not restricted
ICAO-TI / IATA-DGR	Not restricted
IMDG	Not restricted
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code	not applicable

SECTION 15: Regulatory information

Federal and State Regulations

Components of the product are listed in the quoted regulations. For details please refer to the regulations directly. This list is not exhaustive, please check for other applicable regulations.

Federal Regulations
This product is listed on the TSCA inventory

International Inventories

Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate, CAS: 3319-31-1
AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2220200 (EU)
ENCS (3)-1372 (JP)
ENCS (3)-2684 (JP)
ISHL (3)-1372 (JP)
ISHL (3)-2684 (JP)
KECI KE-02668 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC-NZ May be used as single component chemical
TCSI (TW)

SECTION 16: Other information

Revision Date	25-Sep-2018
Issuing date	25-Sep-2018

Hazard Rating Systems

NFPA (National Fire Protection Association)

Health Hazard	0
Fire Hazard	1
Reactivity	0

HMIS (Hazardous Material Information System)

Health Hazard	0
Flammability	1
Physical Hazard	0

Training advice
For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on Oxea owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet
Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the Oxea homepage (www.oxea-chemicals.com).

Disclaimer
For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. Oxea makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

End of Safety Data Sheet