

**E-Series® Catalyst**

Version 2.2

Revision Date 2023-08-03

According to Regulation (EC) No. 1907/2006, Regulation (EC) No. 2020/878

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Product information**

Product Name : E-Series® Catalyst  
Material : 1108682, 1108006, 1106530, 1104405, 1076780, 1104142,  
1092175, 1077170, 1078352, 1078354, 1098646, 1093052,  
1078358, 1061165, 1078353, 1078359, 1092176, 1078361,  
1078340, 1036631, 1017842, 1035484, 1016708, 1017939,  
1031451, 1033973, 1033974, 1034361, 1036632, 1016707

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

Relevant Identified Uses : Catalyst  
Supported

**1.3****Details of the supplier of the safety data sheet**

**Company** : Chevron Phillips Chemical Company LP  
Specialty Chemicals  
10001 Six Pines Drive  
The Woodlands, TX 77380

**Local** : Chevron Phillips Chemicals International N.V.  
Airport Plaza (Stockholm Building)  
Leonardo Da Vincilaan 19  
1831 Diegem  
Belgium

SDS Requests: (800) 852-5530  
Responsible Party: Product Safety Group  
Email:sds@cpchem.com

**1.4****Emergency telephone:**

**Health:**  
866.442.9628 (North America)

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1.832.813.4984 (International)

**Transport:**

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)

Belgium: 070 245 245 (24 hours/day, 7 days/week)

Bulgaria: +359 2 9154 233

Croatia: +3851 2348 342 (24 hours/day, 7 days/week)

Cyprus: 1401

Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402

Denmark: Danish Poison Center (Giftlinjen): +45 8212 1212

Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Finland: 0800 147 111 09 471 977 (24 hours/day)

France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)

Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Greece: (0030) 2107793777 (24 hours/day, 7 days/week)

Hungary: +36-80-201-199 (24 hours/day, 7 days/week)

Iceland: 543 2222 (24 hours/day, 7 days/week)

Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic

Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371 67042473. (24 hours.)

Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Lithuania: +370 (85) 2362052

Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)

Malta: +356 2395 2000

The Netherlands: NVIC: +31 (0)88 755 8000

Norway: 22 59 13 00 (24 hours/day, 7 days/week)

Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Portugal: CIAV phone number: +351 800 250 250

Romania: +40213183606

Slovakia: +421 2 5477 4166

Slovenia: Phone number: 112

Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)

Sweden: 112 – ask for Poisons Information

Responsible Department : Product Safety and Toxicology Group

E-mail address : SDS@CPChem.com


Website : www.CPChem.com

**SECTION 2: Hazards identification****2.1****Classification of the substance or mixture  
REGULATION (EC) No 1272/2008**Long-term (chronic) aquatic hazard,  
Category 2H411:  
Toxic to aquatic life with long lasting effects.**2.2****Labeling (REGULATION (EC) No 1272/2008)**

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Hazard pictograms	:		
Hazard Statements	:	H411	Toxic to aquatic life with long lasting effects.
Precautionary Statements	:	<b>Prevention:</b> P273	Avoid release to the environment.
		<b>Response:</b> P391	Collect spillage.
		<b>Disposal:</b> P501	Dispose of contents/ container to an approved waste disposal plant.

**2.3****Other hazards**

Results of PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**SECTION 3: Composition/information on ingredients****3.1 - 3.2****Substance or Mixture**

Synonyms : Selective Hydrogenation Catalyst  
ARU Catalyst  
Acetylene Removal Unit Catalyst  
FE E-DC-3  
FE E-DC-2  
BE-1  
BE-2  
CPChem E Series  
CPChem FE E-DC-3  
Hydrogenation Catalyst

Molecular formula : Mixture

**Hazardous ingredients**

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]	Specific Conc. Limits, M-factors and ATEs
<b>Aluminum Oxide</b>	<b>1344-28-1</b> <b>215-691-6</b>		99	

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Silver Oxide	20667-12-3 243-957-1	Ox. Sol. 1; H271 Eye Dam. 1; H318 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	0,01 - 0,11	M [Acute]=100 M [Chronic]=100
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For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: First aid measures****4.1****Description of first-aid measures**

- General advice : No hazards which require special first aid measures.
- If inhaled : If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
- In case of skin contact : If on skin, rinse well with water. Call a physician if irritation develops or persists.
- In case of eye contact : Remove contact lenses. Protect unharmed eye. If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

**4.2 Most important symptoms and effects, both acute and delayed****Notes to physician**

- Symptoms : No data available.
- Risks : No data available.

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

- Treatment : No data available.

**SECTION 5: Firefighting measures**

- Flash point : Not applicable
- Autoignition temperature : No data available

**5.1****Extinguishing media**

- Unsuitable extinguishing media : High volume water jet.

**5.2****Special hazards arising from the substance or mixture**

- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

**5.3****Advice for firefighters**

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Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Fire and explosion protection	:	Provide appropriate exhaust ventilation at places where dust is formed.
Hazardous decomposition products	:	Metal Oxides.

**SECTION 6: Accidental release measures****6.1****Personal precautions, protective equipment and emergency procedures**

Personal precautions : Avoid dust formation.

**6.2****Environmental precautions**

Environmental precautions : Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.

**6.3****Methods and materials for containment and cleaning up**

Methods for cleaning up : Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**6.4****Reference to other sections**

Reference to other sections : For personal protection see section 8. For disposal considerations see section 13.

**SECTION 7: Handling and storage****7.1****Precautions for safe handling**  
**Handling**

Advice on safe handling : For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.

Advice on protection against fire and explosion : Provide appropriate exhaust ventilation at places where dust is formed.

**7.2****Conditions for safe storage, including any incompatibilities****Storage**

Requirements for storage areas and containers : Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.

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Advice on common storage : No materials to be especially mentioned.

**7.3****Specific End Use**

Use : Chemical intermediate

**SECTION 8: Exposure controls/personal protection****8.1****Control parameters****Ingredients with workplace control parameters****SK**

Zložky	Podstata	Hodnota	Kontrolné parametre	Poznámka
Aluminum Oxide	SK OEL	NPEL priemerný	1,5 mg/m <sup>3</sup>	respirabilná frakcia
	SK OEL	NPEL priemerný	4 mg/m <sup>3</sup>	inhalovateľná frakcia
	SK OEL	NPEL priemerný	0,1 mg/m <sup>3</sup>	Pevný aerosol, respirabilná frakcia
	SK OEL	NPEL priemerný	1,5 mg/m <sup>3</sup>	Pevný aerosol, respirabilná frakcia

**SE**

Beståndsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
Aluminum Oxide	SE AFS	NGV	5 mg/m <sup>3</sup>	Totalt damm
	SE AFS	NGV	2 mg/m <sup>3</sup>	Respirabel fraktion
Silver Oxide	SE AFS	NGV	0,1 mg/m <sup>3</sup>	3, Total
	SE AFS	NGV	0,1 mg/m <sup>3</sup>	Totalt damm

- 3 Med inhalerbar fraktion menas den dammfraction som definieras i svensk standard SS-EN 481, Arbetsplatsluft - Partikelstorleksfraktioner för mätning av luftburna partiklar, Utgåva 1, 1993, punkt 2.3 och som har en provtagningskaraktäristik enligt punkt 5.1. Med respirabel fraktion menas den dammfraction som definieras i svensk standard SS-EN 481, Arbetsplatsluft - Partikelstorleksfraktioner för mätning av luftburna partiklar, Utgåva 1, 1993, punkt 2.11 och som har en provtagningskaraktäristik enligt punkt 5.3. Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagning av totaldamm och respirabelt damm, Metod nr 1010, Arbetarskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod.

**RO**

Componente	Sursă	Valoare	Parametri de control	Notă
Aluminum Oxide	RO OEL	TWA	2 mg/m <sup>3</sup>	Aerosol
	RO OEL	STEL	5 mg/m <sup>3</sup>	Aerosol

**PT**

Componentes	Bases	Valor	Parâmetros de controlo	Nota
Aluminum Oxide	PT OEL	VLE-MP	1 mg/m <sup>3</sup>	A4, Fração respirável

A4 Agente não classificável como carcinogénico no Homem.

**PL**

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
Aluminum Oxide	PL NDS	NDS	2,5 mg/m <sup>3</sup>	frakcja wdychana
	PL NDS	NDS	1,2 mg/m <sup>3</sup>	frakcja respirabilna
Silver Oxide	PL NDS	NDS	0,05 mg/m <sup>3</sup>	

**NO**

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Aluminum Oxide	FOR-2011-12-06-1358	GV	10 mg/m <sup>3</sup>	Støv

**LV**

Sastāvdaļas	Bāze	Vērtība	Pārvaldības parametri	Piezīme
Aluminum Oxide	LV OEL	AER 8 st	6 mg/m <sup>3</sup>	Dezintegrācijas aerosola

**LT**

Komponentai	Šaltinis	Vertė	Kontrolės parametrai	Pastaba
Aluminum Oxide	LT OEL	IPRD	5 mg/m <sup>3</sup>	įkvepiamoji frakcija
	LT OEL	IPRD	2 mg/m <sup>3</sup>	alveolinė frakcija

**IS**

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota

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Aluminum Oxide	IS OEL	TWA	10 mg/m3	
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**IE**

Components	Basis	Value	Control parameters	Note
Aluminum Oxide	IE OEL	OELV - 8 hrs (TWA)	4 mg/m3	(respirable dust)
	IE OEL	OELV - 8 hrs (TWA)	10 mg/m3	inhalable dust

**HU**

Komponensek	Bázis	Érték	Ellenőrzési paraméterek	Megjegyzés
Aluminum Oxide	HU OEL	AK-érték	5 mg/m3	N,
	HU OEL	AK-érték	2 mg/m3	N, respirábilis frakció

N Irritáló anyagok, egyszerű főttógázok, csekély egészségkárosító hatással bíró anyagok. Korrekció NEM szükséges.

**HR**

Sastojci	Temelj	Vrijednost	Nadzorni parametri	Bilješka
Aluminum Oxide	HR OEL	GVI	10 mg/m3	ukupna prašina, inhalabilne čestice
	HR OEL	GVI	4 mg/m3	respirabilna prašina

**GR**

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Aluminum Oxide	GR OEL	TWA	5 mg/m3	εισπνεύσιμος
	GR OEL	TWA	10 mg/m3	ασπνεύσιμος

**GB**

Components	Basis	Value	Control parameters	Note
Aluminum Oxide	GB EH40	TWA	10 mg/m3	inhalable dust
	GB EH40	TWA	4 mg/m3	(respirable dust)

**FR**

Composants	Base	Valeur	Paramètres de contrôle	Note
Aluminum Oxide	FR VLE	VME	10 mg/m3	Valeurs limites indicatives,

Valeurs limites Valeurs limites indicatives  
indicatives

**FI**

Aineosat	Peruste	Arvo	Valvontaa koskevat muutujat	Huomautus
Silver Oxide	FI OEL	HTP-arvot 8h	0,1 mg/m3	

**ES**

Componentes	Base	Valor	Parámetros de control	Nota
Aluminum Oxide	ES VLA	VLA-ED	10 mg/m3	

**EE**

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
Aluminum Oxide	EE OEL	Piirnorm	10 mg/m3	Kogu tolm
	EE OEL	Piirnorm	4 mg/m3	Peentolm

**DK**

Komponenter	Basis	Værdi	Kontrolparametre	Note
Aluminum Oxide	DK OEL	GV	5 mg/m3	total
	DK OEL	GV	2 mg/m3	respirabel

**DE**

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Aluminum Oxide	DE TRGS 900	AGW	10 mg/m3	Einatembare Fraktion
	DE TRGS 900	AGW	1,25 mg/m3	Alveolengängige Fraktion
Silver Oxide	DE TRGS 900	AGW	0,01 mg/m3	Einatembare Fraktion

**CZ**

Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
Aluminum Oxide	CZ OEL	PEL	0,1 mg/m3	vlákno, respirabilní frakce

**CH**

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Aluminum Oxide	CH SUVA	MAK-Wert	3 mg/m3	NIOSH, alveolengängiger Rauch
	CH SUVA	KZGW	24 mg/m3	NIOSH, alveolengängiger Rauch

NIOSH National Institute for Occupational Safety and Health

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**BG**

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Aluminum Oxide	BG OEL	TWA	10 mg/m <sup>3</sup>	
	BG OEL	TWA	1,5 mg/m <sup>3</sup>	Респирабилна

**BE**

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Aluminum Oxide	BE OEL	TGG 8 hr	1 mg/m <sup>3</sup>	inadembare fractie

**AT**

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Aluminum Oxide	AT OEL	TRK-TMW	5 mg/m <sup>3</sup>	
	AT OEL	TRK-KZW	10 mg/m <sup>3</sup>	
	AT OEL	MAK-TMW	5 mg/m <sup>3</sup>	Rauch, alveolengängiger Anteil
	AT OEL	MAK-TMW	10 mg/m <sup>3</sup>	einatembare Fraktion
	AT OEL	MAK-KZW	10 mg/m <sup>3</sup>	Rauch, alveolengängiger Anteil
	AT OEL	MAK-KZW	20 mg/m <sup>3</sup>	einatembare Fraktion
	AT OEL	MAK-TMW	5 mg/m <sup>3</sup>	alveolengängiger Anteil
	AT OEL	MAK-KZW	10 mg/m <sup>3</sup>	alveolengängiger Anteil

**CH**

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeitpunkt	Stand
Aluminum Oxide	1344-28-1	Aluminium: 50 µg/g Kreatinin (Urin)	bei Langzeitexposition: nach mehreren vorangegangenen Schichten	2019-11-25
		Aluminium: 0.21 µmol/mmol Kreatinin (Urin)	bei Langzeitexposition: nach mehreren vorangegangenen Schichten	2019-11-25
		Aluminium: 50 µg/g Kreatinin (Urin)	bei Langzeitexposition: nach mehreren vorangegangenen Schichten	2019-11-25
		Aluminium: 0.21 µmol/mmol Kreatinin (Urin)	bei Langzeitexposition: nach mehreren vorangegangenen Schichten	2019-11-25

**AT**

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeitpunkt	Stand
Aluminum Oxide	1344-28-1	Aluminium: 60 µg/g Kreatinin (Urin)	Nach Ablauf einer Arbeitswoche/am Ende des Arbeitstages/am Schichtende	2014-02-18
		Aluminium: 60 µg/g Kreatinin (Urin)	Nach Ablauf einer Arbeitswoche/am Ende des Arbeitstages/am Schichtende	2014-02-18

**8.2****Exposure controls  
Engineering measures**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits.



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Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**Personal protective equipment**

- Respiratory protection : If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. A positive pressure, air-supplying respirator may be appropriate if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Safety glasses.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
- Hygiene measures : General industrial hygiene practice.

**SECTION 9: Physical and chemical properties****9.1****Information on basic physical and chemical properties****Appearance**

- Form : Pellets  
 Physical state : solid  
 Color : White to off-white  
 Odor : No data available  
 Odor Threshold : No data available

**Safety data**

- Flash point : Not applicable
- Lower explosion limit : Not applicable
- Upper explosion limit : Not applicable
- Flammability (solid, gas) :

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Oxidizing properties	: No
Autoignition temperature	: No data available
Thermal decomposition	: No data available
Molecular formula	: Mixture
Molecular weight	: Not applicable
pH	: Not applicable
Pour point	: Not applicable
Boiling point/boiling range	: Not applicable
Vapor pressure	: Not applicable
Relative density	: No data available
Density	: 70 - 80 LB/FT3
Water solubility	: Insoluble
Partition coefficient: n-octanol/water	: Not applicable
Viscosity, kinematic	: Not applicable
Relative vapor density	: Not applicable
Evaporation rate	: Not applicable

**9.2****Other information**

Conductivity : No data available

**SECTION 10: Stability and reactivity****10.1****Reactivity** : Stable under recommended storage conditions.**10.2****Chemical stability** : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.**10.3****Possibility of hazardous reactions****Hazardous reactions** : Hazardous reactions: Hazardous polymerization does not

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occur.

Hazardous reactions: Dust may form explosive mixture in air.,  
Reacts violently with water.

Further information: Stable under recommended storage  
conditions., No hazards to be specially mentioned.

**10.4**

**Conditions to avoid** : No data available.

**Thermal decomposition** : No data available

**10.6**

**Hazardous decomposition products** : Metal Oxides

**Other data** : No decomposition if stored and applied as directed.

**SECTION 11: Toxicological information****11.1****Information on toxicological effects****E-Series® Catalyst**

**Acute oral toxicity** : Acute toxicity estimate: > 5.000 mg/kg  
Method: Calculation method

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**Acute inhalation toxicity** : Acute toxicity estimate: > 10 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

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**Acute dermal toxicity** : No data available

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**Skin irritation** : No skin irritation

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**Eye irritation** : Product dust may be irritating to eyes, skin and respiratory  
system.

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**Sensitization** : Did not cause sensitization on laboratory animals.  
Information refers to the main ingredient.

**Genotoxicity in vitro**

Aluminum Oxide : Test Type: Ames test  
Metabolic activation: with and without metabolic activation  
Result: negative

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**Specific Target Organ Toxicity (Single Exposure)**

Silver Oxide :

**11.2****Information on other hazards****E-Series® Catalyst****Further information**

Endocrine disrupting properties : No data available.  
 : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**SECTION 12: Ecological information****12.1****Toxicity****Toxicity to fish**

Aluminum Oxide : NOEC: > 100 mg/l  
 Exposure time: 96 h  
 Species: Salmo salar (Atlantic salmon)  
 Method: OECD Test Guideline 203

Silver Oxide LC50: 1,2 µg/l  
 Exposure time: 96 h  
 Species: Pimephales promelas (fathead minnow)  
 semi-static test

**Toxicity to daphnia and other aquatic invertebrates**

Aluminum Oxide : EC50: > 100 mg/l  
 Exposure time: 48 h  
 Species: Daphnia magna (Water flea)  
 Method: OECD Test Guideline 202

Silver Oxide LC50: 0,22 µg/l  
 Exposure time: 48 h  
 Species: Daphnia magna (Water flea)  
 semi-static test

**Toxicity to algae**

Aluminum Oxide : NOEC: > 100 mg/l  
 Exposure time: 72 h  
 Species: Selenastrum capricornutum (algae)  
 Method: OECD Test Guideline 201

Silver Oxide EC10: 0,54 µg/l  
 Exposure time: 24 h  
 Species: Chlamydomonas reinhardtii (green algae)  
 Growth inhibition

**M-Factor**

disilver oxide : M-Factor (Acute Aquat. Tox.) 100  
 M-Factor (Chron. Aquat. Tox.) 100

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**12.2****Persistence and degradability**

## Biodegradability

Aluminum Oxide : The methods for determining biodegradability are not applicable to inorganic substances.

Silver Oxide : The methods for determining biodegradability are not applicable to inorganic substances.

**12.3****Bioaccumulative potential**

## Bioaccumulation

Aluminum Oxide : This material is not expected to bioaccumulate.

Silver Oxide : No data available

**12.4****Mobility in soil**

## Mobility

Aluminum Oxide : No data available

Silver Oxide : No data available

**12.5****Results of PBT and vPvB assessment**

Results of PBT assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**12.6****Endocrine disrupting properties**

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7****Other adverse effects**

Additional ecological information : Toxic to aquatic life with long lasting effects.

**12.8****Additional Information****Ecotoxicology Assessment**

Short-term (acute) aquatic hazard

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Aluminum Oxide	:	This material is not expected to be harmful to aquatic organisms.
Silver Oxide	:	Very toxic to aquatic life.
Long-term (chronic) aquatic hazard Aluminum Oxide	:	This material is not expected to be harmful to aquatic organisms.
Silver Oxide	:	Very toxic to aquatic life with long lasting effects.

**SECTION 13: Disposal considerations****13.1****Waste treatment methods**

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	:	The product should not be allowed to enter drains, water courses or the soil.
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**SECTION 14: Transport information****14.1 - 14.7****Transport information**

**The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).**

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (SILVER OXIDE), 9, III, MARINE POLLUTANT, (SILVER OXIDE)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (SILVER OXIDE), 9, III

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

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UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (SILVER OXIDE), 9, III, (-)

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

90, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (SILVER OXIDE), 9, III

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (SILVER OXIDE), 9, III

**Maritime transport in bulk according to IMO instruments**

**SECTION 15: Regulatory information****15.1****Safety, health and environmental regulations/legislation specific for the substance or mixture  
National legislation**

Commission Regulation (EU) 2020/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

**Water hazard class (Germany)** : WGK 2 obviously hazardous to water

**15.2**

**Major Accident Hazard Legislation** : 96/82/EC Update: 2003  
Directive 96/82/EC does not apply

: ZEU\_SEVES3 Update:  
ENVIRONMENTAL HAZARDS  
E2  
Quantity 1: 200 t  
Quantity 2: 500 t

**Notification status**

Europe REACH : A substance or substances in this product is not registered or notified to be registered. Importation or manufacture of this product is still permitted provided that it does not exceed the REACH minimum threshold quantity of the non-regulated substances.

Switzerland CH INV : On the inventory, or in compliance with the inventory

United States of America (USA) TSCA : On or in compliance with the active portion of the TSCA inventory

Canada DSL : All components of this product are on the Canadian DSL

Australia AIIC : On the inventory, or in compliance with the inventory

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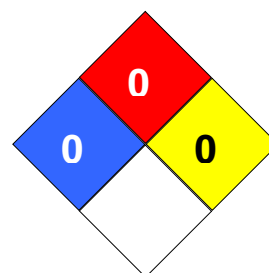
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Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).
Philippines PICCS	:	On the inventory, or in compliance with the inventory
Taiwan TCSI	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 0  
Fire Hazard: 0  
Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 659990

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty	PEL	Permissible Exposure Limit



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	Chemicals Association		
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%	ATE	Acute toxicity estimate

**Full text of H-Statements referred to under sections 2 and 3.**

H271	May cause fire or explosion; strong oxidizer.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.