

**E-Series® Catalyst**

Version 2.3

Revision Date 2025-03-31

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 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
Unique Formula Identifier : 2Q00-6025-G00K-4Y3M

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

Relevant Identified Uses : Catalyst
Supported
Uses advised against : This material should not be used for purposes other than the
identified uses in section 1 without expert advice.

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)

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

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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: POISON CENTER MILAN – Azienda Ospedaliera Niguarda Ca` Grande Tel. +39 02 66101029; POISON CENTER ROME – Policlinico “Agostino Gemelli”, Servizio di tossicologia clinica Tel. +39 06 3054343; POISON CENTER ROME – Ospedale Pediatrico Bambino Gesù Tel. +39 06 68593726; POISON CENTER ROME – Policlinico “Umberto I” Tel. +39 06 4997 8000; POISON CENTER FOGGIA – Azienda Ospedaliera Universitaria Riuniti Tel. +39 0881 732326; POISON CENTER NAPLES – Azienda Ospedaliera “Antonio Cardarelli” Tel. +39 081 7472870; POISON CENTER FLORENCE – Azienda Ospedaliera universitaria Careggi Tel. +39 055 7947819; POISON CENTER PAVIA – IRCCS Fondazione Salvatore Maugeri Tel. +39 0382 24444; POISON CENTER BERGAMO – Azienda Ospedaliera “Papa Giovanni XXIII” Tel. 800 883 300; POISON CENTER VERONA – Azienda Ospedaliera Universitaria integrata Tel. 800 011 858;
 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, H411:

SDS Number:100000014208

2/17

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Category 2

Toxic to aquatic life with long lasting effects.

2.2**Labeling (REGULATION (EC) No 1272/2008)**

Hazard pictograms

:



Hazard Statements

:

H411

Toxic to aquatic life with long lasting effects.

Precautionary Statements

:

Prevention:

P273

Avoid release to the environment.

Response:

P391

Collect spillage.

Disposal:

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

:

ARU Catalyst
 Acetylene Removal Unit Catalyst
 FE E-DC-3
 Selective Hydrogenation Catalyst
 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.	Classification (REGULATION (EC))	Concentration [wt%]	Specific Conc. Limits, M-factors
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	Index No.	No 1272/2008)		and ATEs
Aluminum Oxide	1344-28-1 215-691-6		99	
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

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**

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

5.3**Advice for firefighters**

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**

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- 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.
- Uses advised against : This material should not be used for purposes other than the identified uses in section 1 without expert advice.
- Advice on common storage : No materials to be especially mentioned.

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/m3	respirabilná frakcia
	SK OEL	NPEL priemerný	4 mg/m3	inhalovateľná frakcia
	SK OEL	NPEL priemerný	0,1 mg/m3	Pevný aerosol, respirabilná frakcia
	SK OEL	NPEL priemerný	1,5 mg/m3	Pevný aerosol, respirabilná frakcia

SE

Beståndsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
Aluminum Oxide	AFS 2023:14	NGV	5 mg/m3	Totalt damm
	AFS 2023:14	NGV	2 mg/m3	Respirabel fraktion
Silver Oxide	AFS 2023:14	NGV	0,1 mg/m3	3, Total
	AFS 2023:14	NGV	0,1 mg/m3	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, Arbetskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiameteren 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/m3	Aerosol
	RO OEL	STEL	5 mg/m3	Aerosol

PT

Componentes	Base	Valor	Parâmetros de controle	Nota
Aluminum Oxide	PT OEL	VLE-MP	1 mg/m3	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/m3	frakcja wdychana
	PL NDS	NDS	1,2 mg/m3	frakcja respirabilna
Silver Oxide	PL NDS	NDS	0,05 mg/m3	

NO

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Aluminum Oxide	FOR-2011-12-06-1358	GV	10 mg/m3	Støv

LV

Sastāvdaļas	Bāze	Vērtība	Kontroles parametri	Piezīme
Aluminum Oxide	LV OEL	AER 8 st	6 mg/m3	Dezintegrācijas aerosola

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LT

Komponentai	Šaltinis	Vertė	Kontrolės parametrai	Pastaba
Aluminum Oxide	LT OEL	IPRD	5 mg/m3	įkvepiamoji frakcija
	LT OEL	IPRD	2 mg/m3	alveolinė frakcija

IS

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Aluminum Oxide	IS OEL	TWA	10 mg/m3	

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, respirabilis 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	αναπνεύσιμος

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 admises (circulaires),

Valeurs limites admises (circulaires)
Valeurs limites admises (circulaires)

FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	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
	DK OEL	S	10 mg/m3	total pulver og støv
	DK OEL	S	4 mg/m3	indåndbar fraktion

DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Aluminum Oxide	DE TRGS 900	AGW	10 mg/m3	Y, Einatembare Fraktion
	DE TRGS 900	AGW	1,25 mg/m3	Y, Alveolengängige Fraktion
	DE TRGS 527	BM	0,5 mg/m3	Alveolengängige Staubfraktion
Silver Oxide	DE TRGS 900	AGW	0,01 mg/m3	Einatembare Fraktion

Y Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden

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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 Nationales Institut für Arbeitssicherheit und Gesundheit

BG

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Aluminum Oxide	BG OEL	TWA	10 mg/m3	
	BG OEL	TWA	1,5 mg/m3	Респирабилна
	BG OEL	TWA	10 mg/m3	Инхалабилна

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Aluminum Oxide	BE OEL	TGG 8 hr	1 mg/m3	inadembare fractie

AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Aluminum Oxide	AT OEL	TRK-TMW	5 mg/m3	
	AT OEL	TRK-KZW	10 mg/m3	
	AT OEL	MAK-TMW	5 mg/m3	Rauch, alveolengängiger Anteil
	AT OEL	MAK-TMW	10 mg/m3	einatembare Fraktion
	AT OEL	MAK-KZW	10 mg/m3	Rauch, alveolengängiger Anteil
	AT OEL	MAK-KZW	20 mg/m3	einatembare Fraktion
	AT OEL	MAK-TMW	5 mg/m3	alveolengängiger Anteil
	AT OEL	MAK-KZW	10 mg/m3	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

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		Aluminium: 60 µg/g Kreatinin (Urin)	Nach Ablauf einer Arbeitswoche/am Ende des Arbeitstages/am Schichtende	2014-02-18
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8.2**Exposure controls****Engineering measures**

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

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Safety data

Flash point	: Not applicable
Lower explosion limit	: Not applicable
Upper explosion limit	: Not applicable
Flammability (solid, gas)	:
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
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SECTION 10: Stability and reactivity**10.1**

Reactivity	: Stable under recommended storage conditions.
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10.2

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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 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.

10.5

Materials 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

E-Series® Catalyst
Acute inhalation toxicity : Acute toxicity estimate: > 10 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

E-Series® Catalyst
Acute dermal toxicity : No data available

E-Series® Catalyst
Skin irritation : No skin irritation

E-Series® Catalyst
Eye irritation : Product dust may be irritating to eyes, skin and respiratory system.

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**E-Series® Catalyst
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

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

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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

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

: Toxic to aquatic life with long lasting effects.

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

Short-term (acute) aquatic hazard

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.

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),

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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))

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

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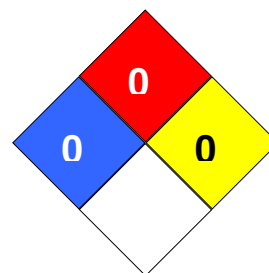
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	registered or notified to be registered. Importation or manufacture of this product is still permitted provided that it does not exceed the REACH minimum threshold quantity of the non-regulated substances.
Switzerland CH INV	: On the inventory, or 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
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%
AIIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency

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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 Chemicals Association	PEL	Permissible Exposure Limit
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.