SAFETY DATA SHEET

E-Series® Catalyst

Version 2.5  Revision Date 2019-10-17

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

Product information

Product Name : E-Series® Catalyst
Material : 1108682, 1108006, 1106530, 1104405, 1076780, 1104142, 1092175, 1077170, 1078352, 1078354, 1093052, 1078358, 1061165, 1078353, 1078356, 1078359, 1070831, 1070922, 1092176, 1078361, 1078340, 1036631, 1017842, 1035484, 1016708, 1017939, 1031451, 1033973, 1033974, 1034361, 1036632, 1016707

Use : Chemical intermediate

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

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

Responsible Department : Product Safety and Toxicology Group
E-mail address : SDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Classification

SDS Number: 100000014208  1/11
Not a hazardous substance or mixture.

**Labeling**

Not a hazardous substance or mixture.

**Carcinogenicity:**

**IARC**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**NTP**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### SECTION 3: Composition/information on ingredients

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

**Molecular formula**: Mixture

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Oxide</td>
<td>1344-28-1</td>
<td>99</td>
</tr>
</tbody>
</table>

### SECTION 4: 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. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
SECTION 5: Firefighting measures

Flash point : Not applicable
Autoignition temperature : No data available

Unsuitable extinguishing media : High volume water jet.
Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
Further information : Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire and explosion protection : Provide appropriate exhaust ventilation at places where dust is formed.
Hazardous decomposition products : Metal Oxides.

SECTION 6: Accidental release measures

Personal precautions : Avoid dust formation.
Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up : Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

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.

Storage

Requirements for storage areas and containers : Electrical installations / working materials must comply with the technological safety standards.
Advice on common storage : No materials to be especially mentioned.
German storage class : Combustible Solids
Use : Chemical intermediate
SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>Basis</th>
<th>Value</th>
<th>Control parameters</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Oxide</td>
<td>OSHA Z-1</td>
<td>TWA</td>
<td>15 mg/m³</td>
<td>total dust</td>
</tr>
<tr>
<td></td>
<td>OSHA Z-1</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>respirable fraction</td>
</tr>
<tr>
<td></td>
<td>OSHA Z-1-A</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Total dust</td>
</tr>
<tr>
<td></td>
<td>OSHA Z-1-A</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>respirable dust fraction</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>LRT irr, pneumoconiosis, neurotoxicity, A4, varies, Respirable fraction</td>
</tr>
</tbody>
</table>

A4 Not classifiable as a human carcinogen
LRT irr Lower Respiratory Tract irritation
neurotoxicity Neurotoxicity
pneumoconiosis Pneumoconiosis
varies varies
varies varies

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 : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, 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

Information on basic physical and chemical properties

SDS Number:100000014208 4/11
Appearance
Form: Pellets
Physical state: Solid
Color: White to off-white

Safety data
Flash point: Not applicable
Lower explosion limit: Not applicable
Upper explosion limit: Not applicable
Oxidizing properties: No
Autoignition temperature: No data available
Molecular formula: Mixture
Molecular weight: Not applicable
pH: Not applicable
Freezing point: 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

SECTION 10: Stability and reactivity
Reactivity: Stable under recommended storage conditions.
### E-Series® Catalyst

**Chemical stability**: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**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.

**Conditions to avoid**:

**Hazardous decomposition products**: Generation of Dusts.

**Metal Oxides**

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

### SECTION 11: Toxicological information

**E-Series® Catalyst**

**Acute oral toxicity**

- LD50: > 5,000 mg/kg
- Species: Rat

**Acute inhalation toxicity**

- Aluminum Oxide:
  - LC50: > 2.3 mg/l
  - Exposure time: 4 h
  - Species: Rat
  - Test atmosphere: dust/mist
  - Method: OECD Test Guideline 403
  - Information given is based on data obtained from similar substances.

**E-Series® Catalyst**

**Acute dermal toxicity**

- LD50: not known
- Species: Rabbit

**E-Series® Catalyst**

**Skin irritation**

- No skin irritation

**E-Series® Catalyst**

**Eye irritation**

- No eye irritation

  Product dust may be irritating to eyes, skin and respiratory system.

**Genotoxicity in vitro**

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

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## SECTION 12: Ecological information

### Ecotoxicity effects

#### Toxicity to fish

<table>
<thead>
<tr>
<th>Substance</th>
<th>NOEC</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Oxide</td>
<td>&gt; 100 mg/l</td>
<td>96 h</td>
<td>Salmo salar (Atlantic salmon)</td>
<td>OECD Test Guideline 203</td>
</tr>
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</table>

#### Toxicity to daphnia and other aquatic invertebrates

<table>
<thead>
<tr>
<th>Substance</th>
<th>EC50</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Oxide</td>
<td>&gt; 100 mg/l</td>
<td>48 h</td>
<td>Daphnia magna (Water flea)</td>
<td>OECD Test Guideline 202</td>
</tr>
</tbody>
</table>

#### Toxicity to algae

<table>
<thead>
<tr>
<th>Substance</th>
<th>NOEC</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Oxide</td>
<td>&gt; 100 mg/l</td>
<td>72 h</td>
<td>Selenastrum capricornutum (algae)</td>
<td>OECD Test Guideline 201</td>
</tr>
</tbody>
</table>

### Biodegradability

- No data available

### Elimination information (persistence and degradability)

- Not applicable

### Bioaccumulation

- Not applicable

### Mobility

- No data available

### Additional ecological information

- No data available

### Ecotoxicology Assessment

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## SECTION 13: Disposal considerations

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.
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)**

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

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

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

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

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

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

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

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

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

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
SECTION 15: Regulatory information

National legislation

SARA 311/312 Hazards : No SARA Hazards

CERCLA Reportable Quantity : This material does not contain any components with a CERCLA RQ.

SARA 302 Reportable Quantity : This material does not contain any components with a SARA 302 RQ.

SARA 302 Threshold Planning Quantity : This material does not contain any components with a section 302 EHS TPQ.

SARA 304 Reportable Quantity : This material does not contain any components with a section 304 EHS RQ.

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:

: Aluminum Oxide - 1344-28-1

Clean Air Act

Ozone-Depletion Potential : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC’s (40 CFR 60.489).

US State Regulations
Pennsylvania Right To Know : Aluminum Oxide - 1344-28-1

Pennsylvania Right To Know : Aluminum Oxide - 1344-28-1
Silver oxide - 20667-12-3

California Prop. 65 Components : This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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 AICS : On the inventory, or in compliance with the inventory
New Zealand NZIoC : 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.

Philippines PICCS : On the inventory, or in compliance with the inventory
China IECSC : On the inventory, or in compliance with the inventory
Taiwan TCSI : 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

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
</tr>
<tr>
<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
</tr>
<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
</tr>
<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic Substances List</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration</td>
</tr>
<tr>
<td>EC50*</td>
<td>Effective Concentration 50%</td>
</tr>
<tr>
<td>EGEST</td>
<td>EOSCA Generic Exposure Scenario Tool</td>
</tr>
<tr>
<td>EOSCA</td>
<td>European Oilfield Specialty Chemicals Association</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Chemical Substances</td>
</tr>
<tr>
<td>MAK</td>
<td>Germany Maximum Concentration Values</td>
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<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
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<td>IECS</td>
<td>Inventory of Existing Chemical Substances in China</td>
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<tr>
<td>ENCS</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
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<tr>
<td>KECI</td>
<td>Korea, Existing Chemical Inventory</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Less Than or Equal To</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal Concentration 50%</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal Dose 50%</td>
</tr>
<tr>
<td>LOAEL</td>
<td>Lowest Observed Adverse Effect Level</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Agency</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety &amp; Health</td>
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<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
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<tr>
<td>NZIoC</td>
<td>New Zealand Inventory of Chemicals</td>
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<td>NOAEL</td>
<td>No Observable Adverse Effect Level</td>
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<td>NOEC</td>
<td>No Observed Effect Concentration</td>
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<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
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<td>PEL</td>
<td>Permissible Exposure Limit</td>
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<td>PICCS</td>
<td>Philippines Inventory of Commercial Chemical Substances</td>
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<td>PRNT</td>
<td>Presumed Not Toxic</td>
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<td>RCRA</td>
<td>Resource Conservation Recovery Act</td>
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<td>STEL</td>
<td>Short-term Exposure Limit</td>
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<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act.</td>
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<td>TLV</td>
<td>Threshold Limit Value</td>
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<td>TWA</td>
<td>Time Weighted Average</td>
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<tr>
<td>TSCA</td>
<td>Toxic Substance Control Act</td>
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<tr>
<td>UVCB</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
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</table>