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Product name	<b>FOSETYL-AI 80 WP</b>	January 2018
Safety data sheet according to EU Reg. 1907/2006 as amended		Supersedes September 2015

## SAFETY DATA SHEET

# FOSETYL-AI 80 WP

Revision: Sections containing a revision or new information are marked with a ♣.

### ♣ SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1. **Product identifier** ..... **FOSETYL-AI 80 WP**
- 1.2. **Relevant identified uses of the substance or mixture and uses advised against** ..... Can be used as fungicide only.
- 1.3. **Details of the supplier of the safety data sheet** **CHEMINOVA A/S**, a subsidiary of FMC Corporation  
 Thyborønvej 78  
 DK-7673 Harboøre  
 Denmark  
[SDS.Ronland@fmc.com](mailto:SDS.Ronland@fmc.com)
- 1.4. **Emergency telephone number**  
Company ..... +45 97 83 53 53 (24 h; for emergencies only)
- Medical emergencies:
- |                                     |   |
|-------------------------------------|---|
| Austria: +43 1 406 43 43            | Norway: +47 22 591300   |
| Belgium: +32 70 245 245             | Poland: +48 22 619 66 54  |
| Bulgaria: +359 2 9154 409           | +48 22 619 08 97  |
| Cyprus: 1401                        | Portugal: 808 250 143 (in Portugal only)                        |
| Czech Republic: +420 224 919 293    | +351 21 330 3284  |
| +420 224 915 402                    | Romania: +40 21318 3606   |
| Denmark: +45 82 12 12 12            | Slovakia: +421 2 54 77 4 166                                    |
| France: +33 (0) 1 45 42 59 59       | Slovenia: +386 41 650 500                                       |
| Finland: +358 9 471 977             | South Africa: +27 83 123 3911 (Bateleur Emergency Response Co.) |
| Greece: 30 210 77 93 777            | Spain: +34 91 562 04 20   |
| Hungary: +36 80 20 11 99            | Sweden: +46 08-331231   |
| Ireland (Republic): +352 1 809 2166 | 112   |
| Italy: +39 02 6610 1029             | Switzerland: 145  |
| Lithuania: +370 523 62052           | Turkey: 114   |
| +370 687 53378                      | United Kingdom: 0870 600 6266 (in the UK only)                  |
| Luxembourg: +352 8002 5500          | U.S.A. & Canada: +1 800 / 331-3148 (ProPharma)                  |
| Netherlands: +31 30 274 88 88       | All other countries: +1 651 / 632-6793 (ProPharma - Collect)    |

### SECTION 2: HAZARDS IDENTIFICATION

- 2.1. **Classification of the substance or mixture** ..... None

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WHO classification ..... Class U (Unlikely to present acute hazard in normal use)

Health hazards ..... The product may be mildly irritating to eyes.

Environmental hazards ..... The product is toxic to aquatic organisms.

## 2.2. Label elements

*According to EU Reg. 1272/2008 as amended*

Product identifier ..... Fosetyl-Al 80 WP

Hazard pictograms ..... None

Signal word ..... None

Hazard statements ..... None

Precautionary statements ..... None

Supplementary hazard statements

EUH210 ..... Safety data sheet available on request.

EUH401 ..... To avoid risks to human health and the environment, comply with the instructions of use.

2.3. Other hazards ..... None of the ingredients in the product meets the criteria for being PBT or vPvB.

Excessive dust formation may pose a dust explosion hazard.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances ..... The product is a mixture, not a substance.

3.2. Mixtures ..... See section 16 for full text of hazard statements.

### *Active ingredient*

**Fosetyl-aluminium** .....

CAS name ..... Phosphonic acid, monoethyl ester, aluminium salt

CAS no. .... 39148-24-8

IUPAC name(s) ..... Aluminium tris-O-ethyl phosphonate

..... Ethyl hydrogen phosphonate, aluminium salt

ISO name ..... Fosetyl-aluminium

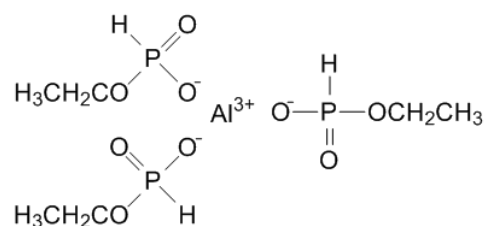
EU name ..... Aluminium triethyl triphosphonate

EC no. (EINECS no.) ..... 254-320-2

EU index no. .... 006-095-00-5

Classification of the ingredient ..... Eye damage: Category 1(H318)

Structural formula .....



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#### ♣ SECTION 4: FIRST AID MEASURES

##### 4.1. Description of first aid measures

Inhalation .....	If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.
Skin contact .....	Immediately remove contaminated clothing and footwear. Flush skin with water. Wash with water and soap. See physician if irritation develops.
Eye contact .....	Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. Get medical attention if irritation develops.
Ingestion .....	Let the exposed person rinse mouth with water and let him/her drink several glasses of water or milk, but not induce vomiting. If vomiting does occur, let him/her rinse mouth and drink water again. Get medical attention immediately.

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

Primarily irritation.

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

Immediate medical attention is required in case of ingestion.

It may be helpful to show this safety data sheet to physician.

Notes to physician .....

A specific antidote for exposure to this material is not known. The irritating effects of this product can be treated as usual against effects of acids or acid fumes. Gastric lavage and/or administration of activated charcoal can be considered. Possible mucosal damage may contraindicate the use of gastric lavage. After decontamination, treatment of exposure is as for a general chemical and should be directed at the control of symptoms and the clinical condition.

#### SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media .....	Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.
5.2. Special hazards arising from the substance or mixture	The essential breakdown products are carbon monoxide, carbon dioxide and phosphorus pentoxide.
5.3. Advice for firefighters .....	Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water runoff. Firemen should wear self-

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contained breathing apparatus and protective clothing.

#### ♣ SECTION 6: ACCIDENTAL RELEASE MEASURES

##### 6.1. Personal precautions, protective equipment and emergency procedures

It is recommended to have a predetermined plan for the handling of spills. Empty, closable vessels for the collection of spills should be available.

In case of large spill (involving 10 tonnes of the product or more):

1. use personal protection equipment; see section 8
2. call emergency telephone no.; see section 1
3. alert authorities.

Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and boots.

Stop the source of the spill immediately if safe to do so. . Keep unprotected persons away from the spill area. Avoid and reduce vapour or dust formation as much as possible, if appropriate by moistening. Personal contact with the product must be avoided. Remove sources of ignition.

##### 6.2. Environmental precautions .....

Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

##### 6.3. Methods and materials for containment and cleaning up

It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping. See GHS (Annex 4, Section 6).

Use non-sparking tools and equipment. If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should immediately be swept up or preferably vacuumed up using equipment with high efficiency final filter. Transfer to suitable containers. Clean area with strong industrial detergent and much water. Absorb wash liquid onto inert absorbent such as universal binder, Fuller's earth, bentonite or other absorbent clay and transfer contaminated absorbent to suitable containers. The used containers should be properly closed and labelled.

Large spills which soak into the ground should be dug up and transferred to suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.

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- 6.4. **Reference to other sections** ..... See subsection 7.1. for fire prevention.  
 See subsection 8.2. for personal protection.  
 See section 13 for disposal.

## ♣ SECTION 7: HANDLING AND STORAGE

- 7.1. **Precautions for safe handling** .... The product can form explosive mixtures with air. Avoid the formation of dust clouds and take precaution measures against static discharges. Use protective equipment designed against explosions. Keep the product away from incendiary sources and protect it against heat and fire.
- In an industrial environment it is recommended to avoid all personal contact with the product, if possible by using closed systems with remote system control. The material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.
- For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8.
- Remove contaminated clothing immediately. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. After work, take off all work clothes and footwear. Take a shower, using water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after each use.
- Do not discharge to the environment. Do not contaminate water when disposing of equipment wash waters. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste. See section 13 for disposal.
- 7.2. **Conditions for safe storage, including any incompatibilities** The product is stable under normal conditions of warehouse storage. Protect against intense heat.
- Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading "POISON" is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.
- 7.3. **Specific end use(s)** ..... The product is a registered pesticide which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.

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## ♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

Personal exposure limits .....

To our knowledge, no personal exposure limits have been established for fosetyl-aluminium or any of the other components in this product. However, exposure limits may be defined by local regulations and must be observed.

#### **Fosetyl-AI**

DNEL, systemic .....

14 mg/kg bw/day

PNEC, aquatic environment .....

0.17 mg/l

### 8.2. Exposure controls .....

When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-hazardous before opening.

In cases of incidental high exposure, maximal personal protection may be necessary, such as respirator, face mask, chemical resistant coveralls.

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well



Respiratory protection

The product does not automatically present an airborne exposure concern when handled carefully, but in the event of an accidental discharge of the material which produces a heavy vapour or dust, workers must put on officially approved respiratory protection equipment with a universal filter type including particle filter.



Protective gloves .....

Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber. The breakthrough times of these materials for the product are unknown, but it is expected that they will give adequate protection.



Eye protection .....

Wear safety glasses. It is recommended to have an eye wash fountain immediately available in the workplace when there is a potential for eye contact.



Other skin protection

Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of excessive or prolonged exposure, coveralls of barrier laminate may be required.

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## ♣ SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on physical and chemical properties

Appearance .....	Light grey solid (powder)
Odour .....	Characteristic
Odour threshold .....	Not determined
pH .....	1% dispersion in water: 3.6
Melting point/freezing point .....	Decomposes without melting
Initial boiling point and boiling range	No boiling point
Flash point .....	Not determined
Evaporation rate .....	Not determined
Flammability (solid/gas) .....	Not flammable
Upper/lower flammability or explosive limits .....	Not determined
Vapour pressure .....	<b>Fosetyl-aluminium</b> : $< 10^{-7}$ Pa at 25°C
Vapour density .....	Not determined
Relative density .....	Not determined
Solubility(ies) .....	Tap density: 0.45 g/cm <sup>3</sup> Solubility of <b>fosetyl-aluminium</b> at 20°C in: xylene 1 mg/l ethyl acetate < 1 mg/l n-heptane < 1 mg/l water approx. 110 g/l
Partition coefficient n-octanol/water	<b>Fosetyl-aluminium</b> : log K <sub>ow</sub> = -2.1 at 21-23°C
Autoignition temperature .....	Not determined
Decomposition temperature .....	Not determined
Viscosity .....	Not determined
Explosive properties .....	Not explosive
Oxidising properties .....	Not oxidising

### 9.2. Other information

Miscibility .....	The product is miscible with water.
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## ♣ SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity .....	To our knowledge, the product has no special reactivities.
10.2. Chemical stability .....	The product is stable during normal handling and storage at ambient temperatures.
10.3. Possibility of hazardous reactions	None known.
10.4. Conditions to avoid .....	Heating of the product will produce harmful and irritant vapours.  The product decomposes in humid conditions.
10.5. Incompatible materials .....	Strong bases, strong oxidising and reducing agents
10.6. Hazardous decomposition products	See subsection 5.2.

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## SECTION 11: TOXICOLOGICAL INFORMATION

11.1. **Information on toxicological effects** \* = Based on available data, the classification criteria are not met.

### Product

Acute toxicity .....	The product is not considered as harmful by single exposure. * The acute toxicity is measured as:
Route(s) of entry	
- ingestion	LD <sub>50</sub> , oral, rat: > 2000 mg/kg (method OECD 423)
- skin	LD <sub>50</sub> , dermal, rat: > 2000 mg/kg (method OECD 402)
- inhalation	LC <sub>50</sub> , inhalation, rat: > 0.91 mg/l/4 h (method OECD 403)
Skin corrosion/irritation .....	Not irritating to skin (method OECD 404). *
Serious eye damage/irritation .....	Minimally irritating to eyes (method OECD 405). *
Respiratory or skin sensitisation ...	Not a skin sensitizer (method OECD 406). *
Germ cell mutagenicity .....	The product contains no ingredient known to be mutagenic. *
Carcinogenicity .....	The product contains no ingredient known to be carcinogenic. *
Reproductive toxicity .....	The product contains no ingredient found to have adverse effects on reproduction. *
STOT – single exposure .....	To our knowledge, specific effects after single exposure have not been observed. *
STOT – repeated exposure .....	The following is found for the active ingredient fosetyl-Al: Target organ: no target organ NOAEL: 20000 ppm (1424 mg/kg bw/day) in a 90-day rat study (method OECD 408). At this dose level only incidental and minor changes were seen. *
Aspiration hazard .....	The product does not present an aspiration pneumonia hazard. *
Symptoms and effects, acute and delayed .....	Primarily irritation

### Fosetyl-Al

Toxicokinetics, metabolism and distribution	After oral intake, fosetyl-aluminium is rapidly absorbed and widely distributed in the body. Metabolism is limited and excretion is rapid as well, mainly within 24 hours. There is no evidence of accumulation.
Acute toxicity .....	The substance is not harmful by inhalation, in contact with skin or if swallowed. * The acute toxicity is measured as:
Route(s) of entry	
- ingestion	LD <sub>50</sub> , oral, rat: > 7080 mg/kg (method OECD 401)



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- skin	LD <sub>50</sub> , dermal, rat: > 2000 mg/kg (method OECD 402)
- inhalation	LC <sub>50</sub> , inhalation, rat: > 5.11 mg/l/4 h (method OECD 403)
Skin corrosion/irritation .....	The substance is not irritating to skin (method OECD 404). *
Serious eye damage/irritation .....	The substance can cause severe irritation to eyes (method OECD 405).
Respiratory or skin sensitisation ...	The substance did not cause skin sensitisation in guinea pigs (method OECD 406). *

## ♣ SECTION 12: ECOLOGICAL INFORMATION

- 12.1. **Toxicity** ..... The product is toxic to algae. It is not considered as harmful to fish, aquatic invertebrates, birds, soil micro- and macroorganisms and insects.

The ecotoxicity of the active ingredient fosetyl-aluminium is measured as:

- Fish	Rainbow trout ( <i>Oncorhynchus mykiss</i> ) .....	96-h LC <sub>50</sub>	> 122 mg/l
		28-day NOEC	100 mg/l
	Bluegill sunfish ( <i>Lepomis macrochirus</i> ) .....	96-h LC <sub>50</sub>	> 60 mg/l
- Invertebrates	Daphnids ( <i>Daphnia magna</i> ) .....	48-h EC <sub>50</sub>	> 100 mg/l
		21-day NOEC	17 mg/l
- Algae	Green algae ( <i>Scenedesmus subspicatus</i> ) .....	72-h EC <sub>50</sub>	5.9 mg/l
- Plants	Duckweed ( <i>Lemna gibba</i> ) .....	14-day NOEC	20.4 mg/l
- Birds	Japanese quail ( <i>Coturnix coturnix japonica</i> ) .....	LD <sub>50</sub>	4997 mg/kg
- Earthworms	<i>Eisenia foetida</i> .....	LC <sub>50</sub>	> 1000 mg/kg soil
- Bees	Honey bee ( <i>Apis mellifera</i> ) .....	48-h LD <sub>50</sub> , contact	> 100 µg/bee
		48-h LD <sub>50</sub> , oral	> 140 µg/bee

- 12.2. **Persistence and degradability** **Fosetyl-aluminium** is readily biodegradable. Primary degradation half-lives are found to be less than 1 day in aerobic soil. Degradation occurs both aerobically as well as anaerobically.

The product contains minor amounts of not readily biodegradable components, which may not be degradable in waste water treatment plants.

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- 12.3. **Bioaccumulative potential** See section 9 for octanol-water partition coefficient.
- Due to its high solubility in water, **fosetyl-aluminium** is not expected to bioaccumulate.
- 12.4. **Mobility in soil** **Fosetyl-aluminium** is mobile in the environment, but is degraded rapidly.
- 12.5. **Results of PBT and vPvB assessment** ..... None of the ingredients meets the criteria for being PBT or vPvB.
- 12.6. **Other adverse effects** ..... Other relevant hazardous effects in the environment are not known.

#### ♣ SECTION 13: DISPOSAL CONSIDERATIONS

- 13.1. **Waste treatment methods** ..... Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste.
- Disposal of waste and packagings must always be in accordance with all applicable local regulations.
- Disposal of product ..... According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.
- Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.
- Disposal of packaging ..... It is recommended to consider possible ways of disposal in the following order:
1. Reuse or recycling should first be considered. Reuse is prohibited except by the authorisation holder. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
  2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
  3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
  4. Disposal in a landfill or burning in open air should only occur as a last resort. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

#### ♣ SECTION 14: TRANSPORT INFORMATION

##### ADR/RID/IMDG/IATA/ICAO classification

- 14.1. **UN number** ..... Not classified as hazardous material for transport

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- 14.2. **UN proper shipping name** ..... Not applicable
- 14.3. **Transport hazard class(es)** ..... Not applicable
- 14.4. **Packing group** ..... Not applicable
- 14.5. **Environmental hazards** ..... May have hazardous properties in the environment.
- 14.6. **Special precautions for user** ..... Avoid any unnecessary contact with the product. Misuse can result in damage to health. Do not discharge to the environment.
- 14.7. **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code** ..... The product is not transported in bulk by ship.

#### SECTION 15: REGULATORY INFORMATION

- 15.1. **Safety, health and environmental regulations/legislation specific for the substance or mixture** ..... To our knowledge, no special regulations apply.  
 All ingredients are covered by EU chemical legislation.
- 15.2. **Chemical safety assessment** ..... A chemical safety assessment is not required to be included for this product.

#### ♣ SECTION 16: OTHER INFORMATION

Relevant changes in the safety data sheet .....	Minor corrections only
List of abbreviations .....	CAS      Chemical Abstracts Service Dir.      Directive DNEL      Derived No Effect Level EC      European Community EC <sub>50</sub> 50% Effect Concentration EINECS      European INventory of Existing Commercial Chemical Substances GHS      Globally Harmonized classification and labelling System of chemicals, Fifth revised edition 2013 IBC      International Bulk Chemical code ISO      International Organisation for Standardization IUPAC      International Union of Pure and Applied Chemistry LC <sub>50</sub> 50% Lethal Concentration LD <sub>50</sub> 50% Lethal Dose MARPOL      Set of rules from the International Maritime Organisation (IMO) for prevention of sea pollution NOAEL      No Observed Adverse Effect Level NOEC      No Observed Effect Concentration OECD      Organisation for Economic Cooperation and Development PBT      Persistent, Bioaccumulative, Toxic

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PNEC Predicted No Effect Concentration  
 Reg. Regulation  
 STOT Specific Target Organ Toxicity  
 vPvB very Persistent, very Bioaccumulative  
 WHO World Health Organisation  
 WP Wettable Powder

References ..... Data measured on the product are unpublished company data. Data on ingredients are available from published literature and can be found several places.

Method for classification ..... Test data

Used hazard statements .....  
 H318 Causes serious eye damage.  
 EUH210 Safety data sheet available on request.  
 EUH401 To avoid risks to human health and the environment, comply with the instructions of use.

Advice on training ..... This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by FMC Corporation may exist. The user has to check the validity of the information under local circumstances.

Prepared by: FMC Corporation / Cheminova A/S / GHB