

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Product name : CROP-SET
Product group : Trade product

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Improcrop U.S.A., Inc. d/b/a Alltech Crop Science
3031 Catnip Hill Road
Nicholasville, Kentucky 40356
USA
T 859-885-9613
RegulatoryACS@alltech.com

1.4. Emergency telephone number

Emergency number : 1-800-856-350

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)

Specific target organ toxicity – Repeated exposure, Category 2 H373 May cause damage to organs through prolonged or repeated exposure.

Full text of H-statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS CA labelling

Hazard pictograms (GHS CA) :



Signal word (GHS CA) : Warning

Hazard statements (GHS CA) : H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements (GHS CA) : P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P314 - Get medical advice/attention if you feel unwell.
P501 - Dispose of contents/container to in accordance with local, regional, national and/or international regulation

2.3. Other hazards

Other hazards which do not result in classification : Persons with allergies should avoid exposure.

2.4. Unknown acute toxicity (GHS CA)

No additional information available

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
Manganese sulfate	manganese sulfate / manganese sulfate (1:1) / manganese sulfate (MnSO4) / manganese sulphate / manganese(2+) sulfate / manganous sulfate / man-gro / sorba-spray manganese / sorba-spray Mn / sulfuric acid manganese(II) salt / sulfuric acid, manganese(2+) salt (1:1) / sulfuric acid, manganese(II)salt (1:1)	CAS-No.: 7785-87-7	2.5 – 5	STOT RE 2, H373
Yucca stem extract	-	CAS-No.: 223749-05-1	2.5 – 5	Acute Tox. 4 (Oral), H302

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
Ferrous sulfate, heptahydrate	B767 / copperas, green / copperas, heptahydrate / duretter, heptahydrate / duroferon, heptahydrate / exsiccated ferrous sulfate / exsiccated ferrous sulphate / feosol / feospan / fer in sol / fero gradumet / ferralyn / ferrotheron / ferrosulfate, heptahydrate / ferrous sulfate heptahydrate / ferrous sulfate, heptahydrate / fesofo / fesotyme / green vitrol / haemofort / iron (II) sulfate (1:1) heptahydrate / iron sulfate, heptahydrate / iron sulphate, heptahydrate / iron vitriol, heptahydrate / iron(II)sulfate-7-hydrate / ironate / ironmonosulfate, heptahydrate / ironous sulfate, heptahydrate / irospan / irosul / melanterite / melanterite, natural / mol-iron / presfersul / slow-Fe / sulfate, sugar / sulferrous / sulfuric acid iron salt, heptahydrate / sulfuric acid iron(II)salt, heptahydrate / sulfuric acid, iron(2+) salt (1:1), heptahydrate /	CAS-No.: 7782-63-0	2.5 – 5	Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
	sulfuric acid, iron(II) salt (1:1), heptahydrate / vitriol, green, heptahydrate			

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention. Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.
First-aid measures general : Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact : Irritation.

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Unsuitable extinguishing media

No additional information available

5.3. Specific hazards arising from the hazardous product

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.4. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.2. Methods and materials for containment and cleaning up

For containment : Collect spillage.

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.
Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool. Store in a cool, dry place, away from direct sunlight. Open containers should be resealed.
Maximum storage period : 24 months
Storage temperature : 1 – 38 °C

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ferrous sulfate, heptahydrate (7782-63-0)

USA - ACGIH - Occupational Exposure Limits

ACGIH OEL TWA	1 mg/m ³
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Manganese sulfate (7785-87-7)

USA - ACGIH - Occupational Exposure Limits

ACGIH OEL TWA	0.1 mg/m ³ (Inhalable fraction)
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8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the aquatic environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Personal protective equipment symbol(s):



Other information:

Persons with allergies should avoid exposure.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Colour	: Brown
Odour	: No data available on odour
Odour threshold	: No data available
pH	: 4.2
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: No data available
Relative vapour density at 20°C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

Reactivity	: The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use.
Conditions to avoid	: None under recommended storage and handling conditions (see section 7).
Incompatible materials	: No additional information available
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hardening time:	: No additional information available

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Yucca stem extract (223749-05-1)	
LD50 oral rat	1027 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 Inhalation - Rat [ppm]	> 2.11 ppmv/4h
ATE CA (oral)	1027 mg/kg bodyweight

Ferrous sulfate, heptahydrate (7782-63-0)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Read-across, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Read-across, Anhydrous form, Dermal, 14 day(s))
LC50 Inhalation - Rat	> 1.1 mg/l (EPA OPP 81-3: Acute Inhalation Toxicity, 4 h, Rat, Male / female, Read-across, Anhydrous form, Inhalation)
ATE CA (dust,mist)	1.5 mg/l/4h

Manganese sulfate (7785-87-7)	
LD50 oral rat	2150 mg/kg (Rat, Male / female, Experimental value, Oral)
LC50 Inhalation - Rat	> 4.45 mg/l air (OECD 403: Acute Inhalation Toxicity, 4 h, Rat, Male / female, Experimental value, Inhalation (dust))
ATE CA (oral)	2150 mg/kg bodyweight

Skin corrosion/irritation : Not classified
pH: 4.2

Ferrous sulfate, heptahydrate (7782-63-0)	
pH	2.1 (1 %, 22 °C)

Manganese sulfate (7785-87-7)	
pH	6 – 6.5 (42.5 - 45 %, 20 °C, EU Method A.6: Water solubility)

Serious eye damage/irritation : Not classified
pH: 4.2

Ferrous sulfate, heptahydrate (7782-63-0)	
pH	2.1 (1 %, 22 °C)

Manganese sulfate (7785-87-7)	
pH	6 – 6.5 (42.5 - 45 %, 20 °C, EU Method A.6: Water solubility)

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Manganese sulfate (7785-87-7)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified
Symptoms/effects after skin contact : Irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Harmful to aquatic life with long lasting effects. Harmful to aquatic life.
Hazardous to the aquatic environment, short-term : Not classified
(acute)
Hazardous to the aquatic environment, long-term : Not classified
(chronic)

Ferrous sulfate, heptahydrate (7782-63-0)	
LC50 - Fish [1]	925 mg/l (96 h, Poecilia reticulata, Static system, Literature study)
EC50 - Crustacea [1]	152 mg/l (48 h, Daphnia magna, Literature study, Anhydrous form)

Manganese sulfate (7785-87-7)	
LC50 - Fish [1]	3.17 mg/l (96 h, Oncorhynchus mykiss, Flow-through system, Fresh water, Weight of evidence, Manganese ion)
EC50 72h - Algae [1]	61 mg/l (OECD 201: Alga, Growth Inhibition Test, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Growth rate)

12.2. Persistence and degradability

Ferrous sulfate, heptahydrate (7782-63-0)	
Persistence and degradability	Biodegradability in soil: no data available. Readily biodegradable in water.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

Manganese sulfate (7785-87-7)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

12.3. Bioaccumulative potential

Ferrous sulfate, heptahydrate (7782-63-0)	
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
BCF - Fish [1]	≤ 20 (OECD 305: Bioconcentration: Flow-Through Fish Test, 28 day(s), Cyprinus carpio, Flow-through system, Fresh water, Read-across, Fresh weight)

Manganese sulfate (7785-87-7)	
Bioaccumulative potential	No bioaccumulation data available.

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

12.4. Mobility in soil

Ferrous sulfate, heptahydrate (7782-63-0)

Ecology - soil	Adsorbs into the soil.
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Manganese sulfate (7785-87-7)

Ecology - soil	No (test)data on mobility of the substance available.
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12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with TDG / DOT / IMDG / IATA

14.1. UN number

UN-No. (TDG)	: Not applicable
DOT NA No	: Not applicable
UN-No. (IMDG)	: Not regulated
UN-No. (IATA)	: Not regulated

14.2. UN proper shipping name

Proper Shipping Name (TDG)	: Not applicable
Proper Shipping Name (DOT)	: Not applicable
Proper Shipping Name (IMDG)	: Not regulated
Proper Shipping Name (IATA)	: Not regulated

14.3. Transport hazard class(es)

TDG
Transport hazard class(es) (TDG) : Not applicable

DOT
Transport hazard class(es) (DOT) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not regulated

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (TDG)	: Not applicable
Packing group (DOT)	: Not applicable
Packing group (IMDG)	: Not regulated
Packing group (IATA)	: Not regulated

14.5. Environmental hazards

Other information : No supplementary information available.

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

14.6. Special precautions for user

TDG

Not applicable

DOT

Not applicable

IMDG

Not regulated

IATA

Not regulated

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. National regulations

Ferrous sulfate, heptahydrate (7782-63-0)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

Manganese sulfate (7785-87-7)

Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Yucca stem extract (223749-05-1)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Ferrous sulfate, heptahydrate (7782-63-0)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Manganese sulfate (7785-87-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

SECTION 16: Other information

Issue date : 06/13/2022
Revision date : 09/08/2023
Supersedes : 06/13/2022

Full text of H-statements:

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

CROP-SET

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Full text of H-statements:	
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.

Safety Data Sheet (SDS), Canada

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