

| | | |
|---|----------------|----------------------|
| Material group | – | Page 1 of 11 |
| Product name | CORAGEN | February 2019 |
| Safety data sheet according to EU Reg. 1907/2006 as amended | | Supersedes June 2018 |

SAFETY DATA SHEET

CORAGEN

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** **CORAGEN**
- 1.2. **Relevant identified uses of the substance or mixture and uses advised against** Can be used as insecticide only.
- 1.3. **Details of the supplier of the safety data sheet** **CHEMINOVA A/S**, a subsidiary of FMC Corporation
 Thyborønvej 78
 DK-7673 Harbøre
 Denmark
SDS.Ronland@fmc.com
- Details of the supplier of the product** **FMC Chemicals (Pty) Ltd**
 Pegasus Building 1, Floor 2
 210 Amarand Ave
 Menlyn
 Pretoria, 0181
 South Africa
- 1.4. **Emergency telephone number** ... **For any emergency or poisoning contact:**
 Griffon Poison Information Centre (24 hrs)
 +27-(0)-82-446-8946
- For fire, leak, spill or other accident emergencies**
 +1 703 / 527 3887 (CHEMTREC - Collect)

♣ SECTION 2: HAZARDS IDENTIFICATION

- 2.1. **Classification of the substance or mixture** Hazards to the aquatic environment, acute: Category 1 (H400)
 chronic: Category 1 (H410)
- WHO classification Class U (unlikely to present acute hazard in normal use).
- Health hazards Serious hazards to health are not expected. However, the product should always be treated with the usual care of handling chemicals.
- Environmental hazards The product is very toxic to aquatic organisms.

| | | |
|----------------|----------------|---------------|
| Material group | – | Page 2 of 11 |
| Product name | CORAGEN | February 2019 |

2.2. Label elements

According to EU Reg. 1272/2008 as amended

Product identifier Coragen 20 SC

Hazard pictogram (GHS09)



Signal word Warning

Hazard statement

H410 Very toxic to aquatic life with long lasting effects.

Supplementary hazard statement

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

Precautionary statements

P273 Avoid release to the environment.

P391 Collect spillage.

P501 Dispose of contents/container as hazardous waste.

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

♣ 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

Chlorantraniliprole Content: 18% by weight
 CAS name 3-Bromo-N-[4-chloro-2-methyl-6-[(methylamino)carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide
 CAS no. 500008-45-7
 IUPAC name 3-Bromo-4'-chloro-1-(3-chloro-2-pyridyl)-2'-methyl-6'-(methyl-carbamoyl)pyrazole-5-carboxanilide
 ISO name/EU name Chlorantraniliprole
 EC no. (EINECS no.) None
 EU index no. None
 Molecular weight 483.1
 Classification of the ingredient Hazards to the aquatic environment, acute: Category 1 (H400)
 chronic: Category 1 (H410)

♣ SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation If experiencing any discomfort, immediately remove from exposure.

| | | |
|----------------|----------------|---------------|
| Material group | – | Page 3 of 11 |
| Product name | CORAGEN | February 2019 |

| | |
|--|---|
| | 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 any symptom 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 persists. |
| Ingestion | Inducing vomiting is not recommended. Rinse mouth and drink water or milk. If vomiting does occur, rinse mouth and drink fluids again. Consult a physician immediately. |
| 4.2. Most important symptoms and effects, both acute and delayed | None known. |
| 4.3. Indication of any immediate medical attention and special treatment needed | Immediate medical attention is required in case of ingestion. |
| Notes to physician | A specific antidote against this substance is not known. Gastric lavage and/or administration of activated charcoal can be considered. |

| |
|--|
| ♣ 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 volatile, toxic, irritant and inflammable compounds such as nitrogen oxides, hydrogen chloride, hydrogen bromide, carbon monoxide, carbon dioxide and various chlorinated and brominated organic compounds. |
| 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-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): |
|---|--|

| | | |
|----------------|----------------|---------------|
| Material group | – | Page 4 of 11 |
| Product name | CORAGEN | February 2019 |

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. Avoid and reduce formation of vapour or mist as much as possible.

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).

If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should be absorbed onto an inert absorbent such as universal binder, Fuller's earth, bentonite or other absorbent clay. Transfer to suitable containers. Clean area with strong industrial detergent and much water. Absorb wash liquid onto suitable absorbent 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.

6.4. Reference to other sections See subsection 8.2. for personal protection.
 See section 13 for disposal.

♣ SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling 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

| | | |
|----------------|----------------|---------------|
| Material group | – | Page 5 of 11 |
| Product name | CORAGEN | February 2019 |

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.

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. 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.

♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Personal exposure limits

To our knowledge not established for any of the ingredients in this product. However, personal exposure limits defined by local regulations may exist and must be observed.

Chlorantraniliprole

DNEL

0.36 mg/kg bw/day

PNEC, aquatic environment

0.45 µg/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.

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.

| | | |
|----------------|----------------|---------------|
| Material group | – | Page 6 of 11 |
| Product name | CORAGEN | February 2019 |



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 mist, 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.

♣ SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on physical and chemical properties

| | |
|---|--|
| Appearance | White liquid (suspension) |
| Odour | Alcohol-like |
| Odour threshold | Not determined |
| pH | 1% dispersion in water: 5 - 9 |
| Melting point | -6°C |
| Initial boiling point and boiling range | Not determined |
| Flash point | > 100°C, no flash point up to boiling point |
| Evaporation rate | Not determined |
| Flammability (solid/gas) | Not applicable (liquid) |
| Upper/ lower flammability or explosive limits | Not determined |
| Vapour pressure | Cyantraniliprole : too low to be measured estimated to 6.3 x 10 ⁻¹² Pa at 20°C |
| Vapour density | Not determined |
| Relative density | 1.08 - 1.10 |
| Solubilities | Solubility of cyantraniliprole at 20°C in: Dimethylformamide 124 g/l acetone 3.446 g/l hexane < 0.001 mg/l water 0.972 mg/l at pH 4 0.880 mg/l at pH 7 0.971 mg/l at pH 9 |

| | | |
|----------------|----------------|---------------|
| Material group | – | Page 7 of 11 |
| Product name | CORAGEN | February 2019 |

| | | |
|---------------------------------------|--|--|
| Partition coefficient n-octanol/water | Cyantranilprole | : log K_{ow} = 2.77 at pH 4 and 20°C log K_{ow} = 2.86 at pH 7 and 20°C log K_{ow} = 2.80 at pH 9 and 20°C |
| Autoignition temperature | Not autoflammable | |
| Decomposition temperature | Decomposition of chlorantranilprole starts at 330°C. | |
| Viscosity | 400 - 800 mPa.s at 30 rpm | |
| Explosive properties | Not explosive | |
| Oxidising properties | Not oxidising | |

9.2. Other information

| | |
|-------------------|--------------------------------------|
| Miscibility | The product is dispersible in water. |
|-------------------|--------------------------------------|

♣ 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. |
| 10.5. Incompatible materials | Strong acids and alkalis. |
| 10.6. Hazardous decomposition products | See subsection 5.2. |

♣ 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 harmful by inhalation, in contact with skin or if swallowed. * However, it should always be treated with the usual care of handling chemicals. The acute toxicity is measured as: | |
| Route(s) of entry | - ingestion | LD ₅₀ , oral, rat: > 5000 mg/kg (method OECD 425) |
| | - skin | LD ₅₀ , dermal, rat: > 5000 mg/kg (method OECD 402) |
| | - inhalation | LC ₅₀ , inhalation, rat: > 2 mg/l/4 h (method OECD 403) |
| Skin corrosion/irritation | Not irritating to skin (method OECD 404). * | |
| Serious eye damage/irritation | Not irritating to eyes (method OECD 405). * | |
| Respiratory or skin sensitisation ... | Not a skin sensitizer (method OECD 429). * | |
| Germ cell mutagenicity | The product contains no ingredients known to be mutagenic. * | |
| Carcinogenicity | The product contains no ingredients known to be carcinogenic. * | |

| | | |
|----------------|----------------|---------------|
| Material group | – | Page 8 of 11 |
| Product name | CORAGEN | February 2019 |

| | |
|---|--|
| Reproductive toxicity | The product contains no ingredients found to have adverse effects on reproduction. * |
| STOT – single exposure | To our knowledge, no specific effects have been observed after single exposure. * |
| STOT – repeated exposure | The following has been measured on the active ingredient chlorantraniliprole: Target organ: liver NOAEL: 1188 mg/kg bw/day in a 90-day oral rat study (method OECD 408). At this exposure, increased liver weight was found. * |
| Aspiration hazards | The product contains no ingredients known to present an aspiration pneumonia hazard. * |
| Symptoms and effects, acute and delayed | To our knowledge, adverse effects in humans have not been reported. |
| <u>Chlorantraniliprole</u> Toxicokinetics, metabolism and distribution | Chlorantraniliprole is rapidly absorbed after oral intake and widely distributed in the body. It is extensively metabolised. Excretion is rapid, within a few days. No indication of bioaccumulation is found. |
| Acute toxicity | The substance is not harmful by inhalation, in contact with skin or if swallowed. * However, it should always be treated with the usual care of handling chemicals. The acute toxicity is measured as: |
| Route(s) of entry | - ingestion LD ₅₀ , oral, rat: > 5000 mg/kg (method OECD 425) |
| | - skin LD ₅₀ , dermal, rat: > 5000 mg/kg (method OECD 402) |
| | - inhalation LC ₅₀ , inhalation, rat: > 5.1 mg/l/4 h (method OECD 403) |
| Skin corrosion/irritation | Not irritating to skin (method OECD 404). * |
| Serious eye damage/irritation | Not irritating to eyes (method OECD 405). * |
| Respiratory or skin sensitisation ... | Not a skin sensitizer (methods OECD 406 and 429). * |

| |
|---|
| ♣ SECTION 12: ECOLOGICAL INFORMATION |
|---|

12.1. **Toxicity** The product is very toxic to aquatic invertebrates and may be harmful to fish and algae. It is not considered as harmful to birds, insects and soil macro- and microorganisms.

The ecotoxicity of the product is measured as:

| | | |
|-----------------|--|---|
| - Fish | Rainbow trout (<i>Oncorhynchus mykiss</i>) | 96-h LC ₅₀ : > 9.9 mg/l |
| - Invertebrates | Daphnids (<i>Daphnia magna</i>) | 48-h EC ₅₀ : 0.035 mg/l |
| - Algae | Green algae (<i>Pseudokirchneriella subcapitata</i>) | 72-h E _r C ₅₀ : > 20 mg/l |

| | | |
|----------------|----------------|---------------|
| Material group | – | Page 10 of 11 |
| Product name | CORAGEN | February 2019 |

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 | 3082 |
| 14.2. UN proper shipping name | Environmentally hazardous substance, liquid, n.o.s. (chlorantraniliprole) |
| 14.3. Transport hazard class(es) | 9 |
| 14.4. Packing group | III |
| 14.5. Environmental hazards | Marine pollutant |
| 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 | Seveso category (Dir. 2012/18/EU): dangerous for the environment |
| 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 | Numerous changes have been made to apart the format of the safety data sheet, but these do not include new information on hazardous properties. |
| List of abbreviations | CAS Chemical Abstracts Service Dir. Directive DNEL Derived No Effect Level EC European Community |

| | | |
|----------------|----------------|---------------|
| Material group | – | Page 11 of 11 |
| Product name | CORAGEN | February 2019 |

| | |
|--------------------------------|--|
| EC ₅₀ | 50% Effect Concentration |
| E _r C ₅₀ | 50% Effect Concentration based on growth |
| 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 ₅₀ | 50% Lethal Concentration |
| LD ₅₀ | 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 |
| n.o.s. | Not otherwise specified |
| OECD | Organisation for Economic Cooperation and Development |
| PBT | Persistent, Bioaccumulative, Toxic |
| PNEC | Predicted No Effect Concentration |
| Reg. | Regulation |
| SC | Suspension Concentrate |
| STOT | Specific Target Organ Toxicity |
| vPvB | very Persistent, very Bioaccumulative |
| WHO | World Health Organisation |

| | |
|---------------------------------|---|
| 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 | H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. 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