

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

1.1. Product identifier

Product name:	SIGRUN CONSTELLATION
Product type:	Emulsifiable concentrate (EC) containing 50 g/L bixafen, 100 g/L prothioconazole and 250 g/L spiroxamine
MAPP number:	[to be assigned — currently shown as XXXXX on artwork]
UFI:	[to be assigned — Sigrun's own PCN required, see Section 16]
Originator product:	Bayer Boogie Xpro (Bayer CropScience Limited; SDS ID 102000014327, version 9, revised 12/12/2024)

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

Use of substance / mixture:	Plant Protection Product — Fungicide. For professional use in winter wheat and winter rye for the control of stem-base, foliar and ear diseases. This product must be sold and used only in England, Scotland and Wales.
Uses advised against:	Any use not specified on the product label. Must not be applied via hand-held equipment.

1.3. Details of the supplier of the safety data sheet

Marketing Company & Authorisation Holder:	Sigrun Agriculture DMCC Unit No: 243, DMCC Business Centre, Level No 8, Jewellery & Gemplex 2, Dubai, United Arab Emirates Tel: +971 (0)58 511 5029 Email: sales@sigrunag.com Web: sigrunag.com
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1.4. Emergency telephone number

Company 24h emergency line:	+971 (0)58 511 5029
UK medical emergency:	NHS 111 (England, Scotland, Wales) / 999 in life-threatening emergency. UK National Poisons Information Service (health professionals only): 0344 892 0111.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under GB CLP:	Acute Tox. 4 (Oral): H302 Acute Tox. 4 (Inhalation): H332 Serious Eye Dam. 1: H318 STOT SE 3: H335 Repr. 2: H361d STOT RE 2: H373 (Eyes) Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Most important adverse effects:	Harmful if swallowed or inhaled. Causes serious eye damage. May cause respiratory irritation. Suspected of damaging the unborn child. May cause damage to organs (eyes) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Signal word:	Danger
Hazard pictograms:	GHS05: Corrosion (serious eye damage) GHS07: Exclamation mark (acute toxicity 4, STOT SE 3) GHS08: Health hazard (Repr. 2, STOT RE 2) GHS09: Environment (Aquatic Acute 1 / Chronic 1)

Hazard components for labelling:	Bixafen Prothioconazole Spiroxamine N,N-Dimethyl decanamide
Hazard statements:	H302+H332: Harmful if swallowed or if inhaled. H318: Causes serious eye damage. H335: May cause respiratory irritation. H361d: Suspected of damaging the unborn child. H373: May cause damage to organs through prolonged or repeated exposure. H410: Very toxic to aquatic life with long lasting effects.
Supplemental hazard statements:	EUH208: Contains 2-[2-(1-chlorocyclopropyl)-2-hydroxy-3-phenylpropyl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, Spiroxamine. May produce an allergic reaction. EUH401: To avoid risks to human health and the environment, comply with the instructions for use.
Precautionary statements:	P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER/doctor/physician. P391: Collect spillage. P410: Protect from sunlight. P501: Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

*** NOTE:** The current Constellation label artwork is missing P391 (Collect spillage) and P410 (Protect from sunlight), both of which appear on the Bayer Boogie Xpro originator label. Recommend adding these at the next print run — see the observations at Section 16.

2.3. Other hazards

PBT / vPvB:	None of the components (Spiroxamine, Prothioconazole, Bixafen, N,N-Dimethyldecanamide) are considered PBT or vPvB.
Endocrine disruptors:	The mixture does not contain components identified as having endocrine-disrupting properties under REACH Article 57(f), Regulation (EU) 2017/2100 or (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Chemical nature: Emulsifiable concentrate (EC). Bixafen / Prothioconazole / Spiroxamine 50:100:250 g/L.

Hazardous ingredients:

Name	CAS-No.	Classification	% w/w
Spiroxamine	118134-30-8	Acute Tox. 4 (H302, H312, H332); Skin Irrit. 2 (H315); Skin Sens. 1 (H317); STOT RE 2 (H373); Repr. 2 (H361d); Aquatic Acute 1 (H400); Aquatic Chronic 1 (H410)	25.15%
Prothioconazole	178928-70-6	Aquatic Acute 1 (H400); Aquatic Chronic 1 (H410)	10.06%
Bixafen	581809-46-3	Aquatic Acute 1 (H400, M-factor 10); Aquatic Chronic 1 (H410)	5.03%
2-Ethylhexanol propylene ethyleneglycol ether	64366-70-7	Aquatic Chronic 3 (H412)	> 1 – < 25%

Name	CAS-No.	Classification	% w/w
N,N-Dimethyl decanamide	14433-76-2	Skin Irrit. 2 (H315); Eye Irrit. 2 (H319); STOT SE 3 (H335); Aquatic Chronic 3 (H412)	≥ 25%

For full text of H-statements referenced above, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

- General advice:** Move out of dangerous area. Place and transport victim in stable position (lying sideways). Remove contaminated clothing immediately and dispose of safely.
- Inhalation:** Move to fresh air. Keep patient warm and at rest. Call a physician or poison control centre immediately.
- Skin contact:** Wash off thoroughly with plenty of soap and water, if available with polyethylene glycol 400, subsequently rinse with water. If symptoms persist, call a physician.
- Eye contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control centre immediately.
- Ingestion:** Rinse mouth. Do NOT induce vomiting. Call a physician or poison control centre immediately.

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

- Symptoms:** No symptoms known or expected. Serious eye damage possible on contact. Respiratory irritation on inhalation.

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

- Treatment:** Treat symptomatically. In case of ingestion, gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. There is no specific antidote.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

- Suitable extinguishing media:** Water spray, alcohol-resistant foam, dry chemical, carbon dioxide.
- Unsuitable extinguishing media:** High volume water jet.

5.2. Special hazards arising from the substance or mixture

- Hazardous combustion products:** In the event of fire the following may be released: hydrogen chloride (HCl), hydrogen cyanide (hydrocyanic acid), hydrogen fluoride, carbon monoxide (CO), sulphur oxides, nitrogen oxides (NOx).

5.3. Advice for fire-fighters

- Special protective equipment:** In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.
- Further information:** Contain the spread of fire-fighting media. Do not allow run-off from fire fighting to enter drains or watercourses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Precautions: Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment (see Section 8).

6.2. Environmental precautions

Environmental precautions: Do not allow to get into surface water, drains or ground water. If spillage enters drains leading to sewage works, inform local water company immediately. If spillage enters rivers or watercourses, inform the Environment Agency (or SEPA/NRW/NIEA as appropriate).

6.3. Methods and material for containment and cleaning up

Cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Clean contaminated floors and objects thoroughly, observing environmental regulations. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Reference: See Sections 7, 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions: No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice. Ensure adequate ventilation.

Hygiene measures: Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash hands before breaks and immediately after handling the product. Wash hands immediately after work; if necessary, take a shower. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt).

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in a place accessible by authorised persons only. Protect from freezing. Keep away from direct sunlight.

Suitable materials: HDPE — steel case.

7.3. Specific end use(s)

Specific use(s): Plant protection product subject to Regulation (EC) No 1107/2009 as retained in GB law. Refer to product label / leaflet. Use in accordance with the Code of Practice for Using Plant Protection Products.

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Occupational exposure limits (OES BCS): Spiroxamine — 0.6 mg/m³ (SK-SEN)
 Prothioconazole — 1.4 mg/m³ (SK-ABS)
 Bixafen — 0.6 mg/m³ (TWA)

Reference: Refer also to HSE Guidance Note EH40 Occupational Exposure Limits (UK) and to the COSHH assessment.

8.2. Exposure controls

Engineering measures: Refer to COSHH assessment. Engineering controls should be used in preference to personal protective equipment wherever practicable. Refer to COSHH Essentials.

Respiratory protection:	Wear respirator with organic vapours and gas filter mask (protection factor 10) conforming to EN 140 type A or equivalent. Respiratory protection should only be used to control residual risk of short-duration activities, when all reasonably practicable steps have been taken to reduce exposure at source.
Hand protection:	Chemical-resistant safety gloves (EN 374). Material: nitrile rubber. Rate of permeability: > 480 min. Glove thickness: > 0.4 mm. Protective index: Class 6. Wash gloves when contaminated; dispose of when contaminated inside, perforated, or when contamination on the outside cannot be removed.
Eye protection:	Wear goggles conforming to EN 166 (Field of Use = 5 or equivalent) AND face-shield (Field of Use = 3 or equivalent).
Skin and body protection:	Wear standard coveralls and Category 3 Type 4 suit. Wear two layers of clothing where possible; polyester/cotton or cotton overalls under chemical-protection suit, professionally laundered frequently. If chemical-protection suit is splashed, sprayed or significantly contaminated, decontaminate as far as possible, then carefully remove and dispose of as advised by manufacturer.
Special precautions – workers of childbearing potential:	Because of the Repr. 2 (H361d) classification of spiroxamine (25.15% in this mixture), employers must comply with Regulation 16 of the Management of Health and Safety at Work Regulations 1999. Pregnant and breastfeeding workers should not handle or be exposed to this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form:	Clear to slightly turbid liquid
Colour:	Yellow to brown
Odour:	Aromatic
pH:	6.5 – 8.5 (1%, 23 °C, deionised water)
Melting point / range:	No data available
Boiling point:	No data available
Flash point:	> 103 °C
Ignition temperature:	360 °C
Explosivity:	Not explosive
Oxidising properties:	No oxidising properties
Vapour pressure:	No data available
Density:	~ 0.99 g/cm ³ at 20 °C
Water solubility:	Dispersible
Partition coefficient (log Pow):	Spiroxamine: 2.8 – 3.0 (20 °C, pH 7) Prothioconazole: 3.82 (20 °C, pH 7) Bixafen: 3.3 (40 °C) N,N-Dimethyldecanamide: 2.46
Surface tension:	26 mN/m (25 °C, undiluted)
Viscosity (kinematic):	85.5 mm ² /s at 20 °C, shear rate 100/sec

9.2. Other information

Nanoform assessment:	This substance/mixture does not contain nanoforms.
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under normal conditions.

10.2. Chemical stability

Chemical stability: Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: No hazardous reactions when stored and handled according to prescribed instructions.

10.4. Conditions to avoid

Conditions to avoid: Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Materials to avoid: Store only in the original container.

10.6. Hazardous decomposition products

Decomposition products: No decomposition products expected under normal conditions of use.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Endpoint	Species	Value
Acute oral toxicity (LD50)	Rat	550 – 2,000 mg/kg
Acute inhalation toxicity (LC50, 4 h, respirable aerosol)	Rat	3.326 mg/l
Acute dermal toxicity (LD50)	Rat	> 2,000 mg/kg

Skin corrosion/irritation: No skin irritation (Rabbit).

Serious eye damage/eye irritation: Risk of serious damage to eyes (Rabbit) — H318.

Respiratory / skin sensitisation: Non-sensitising (Mouse, OECD 429 LLNA). Spiroxamine content triggers EUH208.

Germ cell mutagenicity: Spiroxamine, prothioconazole, bixafen and N,N-dimethyldecanamide were not mutagenic or genotoxic.

Carcinogenicity: Spiroxamine, prothioconazole and bixafen were not carcinogenic in lifetime feeding studies in rats and mice. N,N-dimethyldecanamide is not considered carcinogenic.

Reproductive toxicity: Spiroxamine and prothioconazole caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. Bixafen and N,N-dimethyldecanamide did not cause reproductive toxicity.

Developmental toxicity: Spiroxamine and prothioconazole caused developmental toxicity only at dose levels toxic to the dams. Bixafen and N,N-dimethyldecanamide did not cause developmental toxicity. On the basis of the spiroxamine content, the mixture is classified Repr. 2 (H361d).

STOT — single exposure: N,N-Dimethyldecanamide may cause respiratory irritation — mixture classified STOT SE 3 (H335). Spiroxamine, prothioconazole, bixafen: classification criteria not met.

STOT — repeated exposure: Spiroxamine caused specific target organ toxicity to the eyes in dogs. Mixture classified STOT RE 2 (H373 — Eyes).

Aspiration hazard: Classification criteria not met.

Further information: Irritating to respiratory system.

SECTION 12: Ecological information

12.1. Toxicity

Endpoint	Organism / Species	Value
Toxicity to fish (LC50, 96 h)	Oncorhynchus mykiss (rainbow trout)	1.55 mg/l
Toxicity to aquatic invertebrates (EC50, 48 h)	Daphnia magna (Water flea)	4.6 mg/l
Toxicity to aquatic plants (IC50, 72 h, growth rate)	Raphidocelis subcapitata	0.0499 mg/l
Toxicity to aquatic plants (ErC50, 72 h)	Skeletonema costatum (prothioconazole)	0.03278 mg/l
Toxicity to aquatic plants (EC10, 72 h)	Skeletonema costatum (prothioconazole)	0.01427 mg/l

12.2. Persistence and degradability

Assessment: Spiroxamine: not rapidly biodegradable.
 Prothioconazole: not rapidly biodegradable.
 Bixafen: not rapidly biodegradable.
 N,N-Dimethyldecanamide: rapidly biodegradable.

Koc: Spiroxamine 2,415 | Prothioconazole 1,765 | Bixafen 3,869

12.3. Bioaccumulative potential

Bioaccumulation: Spiroxamine: BCF 87 — does not bioaccumulate.
 Prothioconazole: BCF 19 — does not bioaccumulate.
 Bixafen: BCF 695 — does not bioaccumulate.
 N,N-Dimethyldecanamide: does not bioaccumulate.

12.4. Mobility in soil

Assessment: All four hazardous components are slightly mobile in soils.

12.5. Results of PBT and vPvB assessment

Assessment: None of the components (Spiroxamine, Prothioconazole, Bixafen, N,N-Dimethyldecanamide) fulfil PBT or vPvB criteria.

12.6. Endocrine disrupting properties

Assessment: The mixture does not contain components identified as endocrine disruptors under REACH Article 57(f), Regulation (EU) 2017/2100 or (EU) 2018/605 at $\geq 0.1\%$.

12.7. Other adverse effects

Other effects: No other effects to be mentioned.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product: In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant. Advice may be obtained from the Environment Agency (or SEPA/NRW/NIEA).

Contaminated packaging: Small containers (< 10 L or < 10 kg) should be rinsed thoroughly using an integrated pressure rinsing device, or manually rinsing three times. Add washings to sprayer at time of filling. Dispose of empty and cleaned packaging safely. Follow advice on product label.

SECTION 14: Transport information

14.1. UN number

ADR / RID / IMDG / IATA / UN 3082
 ADN:

14.2. UN proper shipping name

Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SPIROXAMINE, PROTHIOCONAZOLE SOLUTION)

14.3. Transport hazard class(es)

Class: 9 — Miscellaneous dangerous substances

14.4. Packing group

Packing group: III

14.5. Environmental hazards

Environmentally hazardous: Yes

Marine pollutant (IMDG): Yes

14.6. Special precautions for user

Hazard identification number (Kemler): 90

Emergency action code (UK): 3Z

Reference: See Sections 6-8.

14.7. Transport in bulk according to IMO instruments

Bulk transport: No transport in bulk according to the IBC Code.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

GB Plant Protection Products Regulation: Regulation (EC) No 1107/2009 as retained in GB law. Sigrun Constellation requires MAPP approval from HSE/CRD before placing on the GB market — MAPP number to be assigned (currently shown as XXXXX on artwork).

GB CLP: Regulation (EC) No 1272/2008 as retained in GB law (UK SI 2019/720 and UK SI 2020/1567).

UK REACH: Regulation (EC) No 1907/2006 as retained in UK law (UK SI 2019/758 and UK SI 2020/1577).

COSHH: The Control of Substances Hazardous to Health Regulations 2002 (as amended) apply to use of this product at work. Refer also to HSE EH40 Table 1 workplace exposure limits.

MHSW Regulations 1999: Regulation 16 — Risk assessment for new or expectant mothers. Because the mixture contains Repr. 2 components (spiroxamine), employers must assess and control any risk to pregnant workers.

Waste treatment: Environmental Protection Act 1990 Part II; Environmental Protection (Duty of Care) Regulations 1991; Hazardous Waste Regulations 2005 (as amended).

WHO classification: II (Moderately hazardous).

15.2. Chemical Safety Assessment

CSA: No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

Revision

This revision: Revision 1.0 — issued 19/08/2026. First issue.

Basis: Compiled against the originator Bayer Boogie Xpro SDS (Bayer CropScience Limited, SDS ID 102000014327, version 9, revised 12/12/2024). Constellation is the same 50:100:250 g/L bixafen/prothioconazole/spiroxamine emulsifiable concentrate formulation.

Label observations flagged during SDS preparation

The following items on the current Constellation label artwork (V1, 09/24) need to be closed before external issue:

- MAPP number — currently shown as XXXXX. Must be assigned by HSE/CRD before the product can be placed on the GB market. This 09/24 print has been waiting for approval for at least a year.
- UFI code — currently shown as XXXXXXXXXXXXXXXX. Must be assigned via HSE Poison Centre Notification portal. Deadline for products on the GB market was 1 January 2025 — now overdue. Bayer Boogie Xpro Plus carries UFI 5DH3-003S-U00G-KTFK; Sigrun must generate its own separate UFI.
- QR code / SDS weblink — currently shown as XXXXXXXXXXXXXXXX. Must resolve to this SDS (revision 1.0) on sigrunag.com/products before print.
- Precautionary statements — current label carries P280, P305+P351+P338, P310, P501 and disposal + EUH208/EUH401. Bayer originator additionally carries P391 (Collect spillage) and P410 (Protect from sunlight). Recommend adding both at next print run.
- Crop scope — Constellation label authorises winter wheat and winter rye only (single row in the crop table). Bayer Boogie Xpro Plus (MAPP 18835) also covers spring wheat and triticale. Confirm with CRD whether this narrower scope is the intended authorisation for Sigrun Constellation, or whether spring wheat and triticale should be added to the label.
- Emergency line — currently +971 (0)58 511 5029 (Sigrun UAE customer services). For a Danger + Repr. 2 product in GB market, consider adding a UK-based 24 h emergency contract (NCEC / Chemtrec) alongside the UAE line.
- Note: Bayer's original active concentrations for Boogie Xpro (as in the SDS supplied) are 50:100:250 g/L. The Boogie Xpro Plus product (label) uses a slightly stronger 55:110:250 g/L formulation. Constellation matches the base Boogie Xpro concentrations (50:100:250) — this SDS follows those figures.

Full text of H- and EUH-statements referenced in Sections 2 and 3

Statements: H302: Harmful if swallowed.
 H312: Harmful in contact with skin.
 H315: Causes skin irritation.
 H317: May cause an allergic skin reaction.
 H318: Causes serious eye damage.
 H319: Causes serious eye irritation.
 H332: Harmful if inhaled.
 H335: May cause respiratory irritation.
 H361d: Suspected of damaging the unborn child.
 H373: May cause damage to organs through prolonged or repeated exposure.
 H400: Very toxic to aquatic life.
 H410: Very toxic to aquatic life with long lasting effects.
 H412: Harmful to aquatic life with long lasting effects.
 EUH208: Contains 2-[2-(1-chlorocyclopropyl)-2-hydroxy-3-phenylpropyl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, Spiroxamine. May produce an allergic reaction.
 EUH401: To avoid risks to human health and the environment, comply with the instructions for use.

Abbreviations

Abbreviations: ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ATE: Acute Toxicity Estimate.
 BCF: Bioconcentration Factor.

CLP: Classification, Labelling and Packaging Regulation (EC) No 1272/2008.
EC (formulation): Emulsifiable concentrate.
IMDG: International Maritime Dangerous Goods code.
LD50 / LC50: Lethal Dose / Lethal Concentration, 50%.
MAPP: Ministerially Approved Plant Protection product number.
OES BCS: Bayer AG Crop Science internal Occupational Exposure Standard.
PBT / vPvB: Persistent, Bioaccumulative and Toxic / very Persistent and very Bioaccumulative.
SDH: Succinate Dehydrogenase (fungicide mode of action).
STOT SE / RE: Specific Target Organ Toxicity – Single / Repeated Exposure.
UFI: Unique Formula Identifier.
WEL: Workplace Exposure Limit (HSE EH40).

Data sources

Sources: Classification, composition, tox and ecotox data derived from the originator Bayer Boogie Xpro Safety Data Sheet (Bayer CropScience Limited, SDS ID 102000014327, version 9, revised 12/12/2024, print date 22/08/2025, GB-en). Substance-level data from the REACH registration dossiers for spiroxamine (CAS 118134-30-8), prothioconazole (CAS 178928-70-6), bixafen (CAS 581809-46-3) and N,N-Dimethyldecanamide (CAS 14433-76-2).

Legal disclaimer

Disclaimer: The information provided in this Safety Data Sheet is correct to the best of Sigrun Agriculture DMCC's knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a warranty or quality specification. Users should follow the product label and all applicable regulations.