

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

1.1. Product identifier

Product name:	BALOR
Product type:	Suspension concentrate (SC) containing 700 g/L metamitron
MAPP number:	21418
UFI:	[to be assigned — see Section 16]
Originator baseline:	UPL Bettix Flo (UPL Europe Ltd, product code HBT01, SDS v4 revised 14/11/2019, MAPP 16559). Synonyms: Defiant SC, Target Flo.

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

Use of substance / mixture:	Plant Protection Product — Herbicide. For professional use in accordance with the product label. This product must be sold and used only in Great Britain (England, Scotland and Wales).
Sector(s) of use:	SU1 — Agriculture, forestry, fishery.
Product category:	PC27 — Plant protection products.
Uses advised against:	Any use not specified on the product label.

1.3. Details of the supplier of the safety data sheet

Supplier:	Gemini Agriculture Ltd 71-75 Shelton Street, Covent Garden London WC2H 9JQ, United Kingdom Tel: +44 (0)20 3011 5515 Email: sales@geminiag.com Web: geminiag.com
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1.4. Emergency telephone number

Company 24h emergency line:	+44 (0)845 8698756 (Gemini Emergency line)
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:	Aquatic Acute 1: H400 Aquatic Chronic 1: H410
Most important adverse effects:	Very toxic to aquatic life with long lasting effects. Contains 1,2-benzisothiazol-3(2H)-one; may produce an allergic skin reaction in sensitised individuals.

2.2. Label elements

Signal word:	Warning
Hazard pictograms:	GHS09: Environment
Hazard statements:	H410: Very toxic to aquatic life with long lasting effects.
Precautionary statements:	P273: Avoid release to the environment. P391: Collect spillage. 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.
Supplemental hazard statements:	EUH208: Contains 1,2-benzisothiazol-3(2H)-one. May produce an allergic reaction.

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

2.3. Other hazards

- PBT / vPvB:** This mixture contains no substance(s) considered to be persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
- Endocrine disruptors:** The mixture does not contain substance(s) identified as having endocrine-disrupting properties in accordance with the criteria of Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at $\geq 0.1\%$.

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Chemical nature: Crop protection product, herbicide, suspension concentrate (SC).

Hazardous ingredients:

Name	CAS-No.	EC / Index No. / REACH	Classification	% w/w
Metamitron (ISO)	41394-05-2	EC 255-349-3 / Index 613-129-00-8	Acute Tox. 4 (Oral): H302; Aquatic Acute 1: H400	50 – 60%
Ethylene glycol	107-21-1	EC 203-473-3 / Index 603-027-00-1 / REACH 01-2119456816-28	Acute Tox. 4 (Oral): H302	5 – 10%
Ethoxylated polyarylphenyl sulfate, ammonium salt	119432-41-6	EC 601-612-6	Eye Dam. 1: H318	1 – 5%
Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	68425-94-5	EC 614-476-8	Skin Irrit. 2: H315; Eye Irrit. 2: H319	1 – 5%
1,2-Benzisothiazol-3(2H)-one (BIT)	2634-33-5	EC 220-120-9 / Index 613-088-00-6	Acute Tox. 4 (Oral): H302; Skin Irrit. 2: H315; Eye Dam. 1: H318; Skin Sens. 1: H317; Aquatic Acute 1: H400	< 1%

SECTION 4: First aid measures

4.1. Description of first aid measures

- General advice:** In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- If inhaled:** Move to fresh air. Call a POISON CENTER or doctor if you feel unwell.
- Skin contact:** Wash off immediately with plenty of water. If symptoms persist, call a physician.
- Eye contact:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, consult a specialist.
- Ingestion:** Rinse mouth with water. Call a POISON CENTER or doctor if you feel unwell.
- Self-protection of the first aider:** First-aid personnel should pay attention to self-protection.

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

Symptoms: No specific symptoms known for the product itself under normal use. Contains BIT at trace level, which may cause an allergic skin reaction in sensitised individuals.

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

Treatment: Treat symptomatically. No specific antidote known.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media: Water spray. Dry powder. Foam. Carbon dioxide (CO₂).

Unsuitable extinguishing media: No information available.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: Thermal decomposition may release toxic fumes.

5.3. Advice for fire-fighters

Protective equipment: Wear self-contained breathing apparatus and protective suit.

Further information: Do not allow run-off from fire fighting to enter drains or watercourses. Contain fire-fighting media.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Avoid contact with skin and eyes. Wear protective gloves, protective clothing and eye/face protection. Evacuate personnel to safe areas.

For emergency responders: Use personal protective equipment as required. Evacuate personnel to safe areas.

6.2. Environmental precautions

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system. Inform the Environment Agency (or SEPA / NIEA) if spillage enters surface or ground waters.

6.3. Methods and material for containment and cleaning up

Methods for containment: Prevent further leakage or spillage if safe to do so.

Methods for cleaning up: Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

Prevention of secondary hazards: Clean contaminated objects and areas thoroughly, observing environmental regulations.

6.4. Reference to other sections

Reference: See Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Advice on safe handling:** Provide adequate ventilation. Use only outdoors or in a well-ventilated area. Ensure that eyewash stations and safety showers are close to the workstation location.
- General hygiene considerations:** Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin and eyes. Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Specific use(s): Herbicide. Plant protection product subject to Regulation (EC) No 1107/2009 as retained in GB law. Refer to the product label and packaging for information about appropriate use. 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 (HSE EH40 — Ethylene glycol, CAS 107-21-1):

Reference	TWA (8 h)	STEL (15 min)
UK WEL (EH40)	20 ppm / 52 mg/m ³	40 ppm / 104 mg/m ³
UK WEL — particulate	10 mg/m ³	—

Note: Skin notation ('Sk' or equivalent) applies to ethylene glycol in most EU member states — refer to the current edition of HSE Guidance Note EH40 Occupational Exposure Limits.

Metamitron and BIT: No specific UK Workplace Exposure Limit assigned.

8.2. Exposure controls

- Engineering controls:** Ensure adequate ventilation, especially in confined areas.
- Eye/face protection:** Safety glasses with side-shields conforming to EN 166.
- Hand protection (EN ISO 374):** Wear protective nitrile rubber gloves. Rate of permeability: > 480 min. Glove thickness: > 0.4 mm.
Please observe the instructions regarding permeability and breakthrough time from the glove supplier. Wash gloves when contaminated; dispose of when contaminated inside, perforated, or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet.
- Skin and body protection:** Wear standard coveralls and Category 3 Type 4 suit. If there is a risk of significant exposure, consider a higher-protective-type suit. Wear two layers of clothing wherever possible; polyester/cotton or cotton overalls should be worn under the chemical-protection suit and professionally laundered frequently.
- Respiratory protection:** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Environmental exposure controls:** Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water. Prevent product from entering drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Off-white (white; yellowish white)
Physical state:	Liquid — suspension concentrate (SC)
Odour:	Paint-like
pH:	8 (1% solution, CIPAC MT 75.3)
Melting point / freezing point:	No information available
Boiling point / range:	No information available
Flash point:	112 °C (EC A.9)
Flammability (solid, gas):	Not applicable
Surface tension:	51.8 mN/m at 20 °C (EC A.5, OECD 115)
Relative density:	1.203 g/ml (EC A.3)
Water solubility:	Dispersible
Partition coefficient log Kow:	No information available at mixture level (Metamitron: 0.83; Ethylene glycol: -1.93; BIT: 1.3)
Auto-ignition temperature:	479 °C (EC A.15)
Decomposition temperature:	No information available
Viscosity (dynamic):	55 – 324 mPa·s at 20 °C (CIPAC MT 192)
Oxidising properties:	Non-oxidising (EC A.21)
Explosive properties:	According to the chemical structure, no explosion reaction is expected (EC A.14)

9.2. Other information

VOC content: No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity: No information available.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: None under normal processing.

10.4. Conditions to avoid

Conditions to avoid: Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Materials to avoid: Strong acids. Strong oxidising agents.

10.6. Hazardous decomposition products

Decomposition products: Thermal decomposition giving flammable and toxic products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Product-level acute toxicity:

Route	Value	Method
Oral (LD50)	> 2,000 mg/kg	OECD Guideline 420
Dermal (LD50)	> 2,000 mg/kg	OECD Guideline 402
Inhalation (LC50)	> 3.49 mg/l	OECD Guideline 403

Skin corrosion / irritation: Not classified. No skin irritation (OECD Guideline 404).

Serious eye damage / irritation: Not classified. No eye irritation (OECD Guideline 405).

Respiratory / skin sensitisation: Not classified. Skin: did not cause sensitisation (OECD Guideline 429). Contains BIT below the classification threshold; EUH208 applies.

Germ cell mutagenicity: No information available.

Carcinogenicity: No information available.

Reproductive toxicity: No information available.

STOT — single exposure: No information available.

STOT — repeated exposure: No information available.

Aspiration hazard: No information available.

SECTION 12: Ecological information

12.1. Toxicity

Assessment: Very toxic to aquatic life with long lasting effects (H410).

Endpoint	Organism / Species	Value	Method
EC50 algae (72 h)	Algae	2.32 mg/L	OECD 201
EC50 crustacea (48 h)	Daphnia magna	> 100 mg/L	OECD 202
LC50 fish (96 h)	Fish	> 100 mg/L	OECD 203
EC50 aquatic plants (7 d)	Lemna	1.76 mg/L	OECD 221
EC50 aquatic plants (14 d)	Myriophyllum	2.28 mg/L	OECD 239

12.2. Persistence and degradability

Assessment: No information available at mixture level.

12.3. Bioaccumulative potential

Substance	Log Pow
Metamitron	0.83
Ethylene glycol	-1.93
1,2-Benzisothiazolin-3-one (BIT)	1.3

12.4. Mobility in soil

Assessment: No information available.

12.5. Results of PBT and vPvB assessment

Assessment: This mixture contains no substance considered to be persistent, bioaccumulative or toxic (PBT), or very persistent and very bioaccumulative (vPvB).

Endpoint	Organism / Species	Value	Method
12.6. Endocrine disrupting properties			
Assessment:	The mixture does not contain components identified as endocrine disruptors under Regulation (EU) 2017/2100 or (EU) 2018/605 at ≥ 0.1%.		
12.7. Other adverse effects			
Other effects:	No information available.		

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused product:	Dispose of in accordance with local regulations. This product and any uncleaned containers must be disposed of as hazardous waste in accordance with the Hazardous Waste Regulations 2005 (as amended).
Contaminated packaging:	Empty containers should be taken for local recycling, recovery or waste disposal. Rinse thoroughly using an integrated pressure rinsing device or manually rinse three times; add rinsate to the spray tank.
European Waste Code (indicative):	02 01 08* — agrochemical waste containing dangerous substances.
Note:	According to the European Waste Catalogue, Waste Codes are not product-specific but application-specific.

SECTION 14: Transport information

14.1. UN number

ADR / IMDG / IATA: UN 3082

14.2. UN proper shipping name

Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Metamitron)

14.3. Transport hazard class(es)

Class: 9 — Miscellaneous dangerous substances
Subsidiary class: Not applicable

14.4. Packing group

Packing group: III

14.5. Environmental hazards

ADR / IATA: Dangerous for the environment
IMDG: Marine Pollutant

14.6. Special precautions for user

ADR special provisions: 274, 335, 375, 601
IMDG special provisions: 274, 335, 969
IATA special provisions: A97, A158, A197
Small-package exemption: May be shipped as non-dangerous in single/inner packagings ≤ 5 L for liquids under ADR/RID/ADN Special Provision 375, IMDG 2.10.2.7 and IATA A197.

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

Bulk transport: Not applicable.

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. Authorised for professional use in Great Britain under MAPP 21418.
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). Contains no substance(s) listed on UK REACH Annex XVII (restrictions), Annex XIV (authorisation), or the Candidate List (SVHC).
PIC / POP / Ozone / Explosives Precursors / Drug Precursors:	Contains no substance(s) listed on the corresponding UK-retained regulations.
COSHH:	The Control of Substances Hazardous to Health Regulations 2002 (as amended) apply to use of this product at work.

15.2. Chemical Safety Assessment

CSA: A chemical safety assessment has not been carried out for the mixture.

SECTION 16: Other information

Revision

This revision: Revision 1.0 — first issue, 19/08/2026.

Basis: Compiled against the originator UPL Bettix Flo Safety Data Sheet (UPL Europe Ltd, product code HBT01, revision 4 dated 14/11/2019). Balor is Gemini's rebadge of the same 700 g/L metamitron SC formulation. Content, classification and composition preserved from the originator; regulatory framework updated from the 2019 EU REACH format to the current UK REACH SI format (post-Brexit).

Actions required before external issue

- Submit PCN via HSE Poison Centre Notification portal and obtain a Gemini-specific UFI code. Deadline for products on the GB market was 1 January 2025 — overdue.
- Confirm 24 h emergency line — recommend contracting NCEC at Culham (as used by UPL and other originators) for a portfolio-wide Gemini contract. Update Section 1.4 and label accordingly.
- Consider whether the current Bettix Flo formulation is still current. UPL's SDS is dated 14/11/2019 — over six years old — and metamitron classifications may have been reviewed since. Cross-check with UPL for any newer revision.
- Consider whether Regulation (EU) 2023/707 introduces EUH451 (vPvM) or endocrine-disruption obligations for any Balor component. Applies to mixtures from 1 May 2026.

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

Statements: H302: Harmful if swallowed.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H319: Causes serious eye irritation.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.
EUH208: Contains 1,2-benzisothiazol-3(2H)-one. 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.
CAS: Chemical Abstracts Service.
CIPAC: Collaborative International Pesticides Analytical Council.
CLP: Classification, Labelling and Packaging Regulation (EC) No 1272/2008.
EC-No: European Community number (EINECS/ELINCS).
IATA: International Air Transport Association.
IMDG: International Maritime Dangerous Goods Code.
LD50 / LC50: Lethal Dose / Lethal Concentration, 50%.
MAPP: Ministerially Approved Plant Protection product number.
OECD: Organisation for Economic Co-operation and Development.
PBT / vPvB: Persistent, Bioaccumulative and Toxic / very Persistent and very Bioaccumulative.
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals.
SC: Suspension concentrate.
STEL / TWA: Short-Term Exposure Limit / Time-Weighted Average.
UFI: Unique Formula Identifier.
WEL: Workplace Exposure Limit (HSE EH40).

Data sources

Sources: Content derived from UPL Europe Ltd Bettix Flo Safety Data Sheet (product code HBT01, revision 4 dated 14/11/2019), which is the originator baseline. Substance-level data for metamitron and co-formulants from Annex VI of Regulation (EC) No 1272/2008 and the respective REACH registration dossiers.

Legal disclaimer

Disclaimer: The information provided in this Safety Data Sheet is correct to the best of Gemini Agriculture Ltd'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. In the case of formulation or mixture with other products, users should ensure that no new hazard arises.