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

1.1 Product identifier
Trade name MERLIN FLEXX SC480 4X5L BOT BG
Product code (UVP) 79030215

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

1.3 Details of the supplier of the safety data sheet
Supplier Bayer AG
Kaiser-Wilhelm-Allee 1
51373 Leverkusen
Germany
Telefax +49(0)2173-38-7394
Responsible Department Substance Classification & Registration
+49(0)2173-38-3409 (during business hours only)
Email: BCS-SDS@bayer.com

1.4 Emergency telephone no.
Emergency telephone no. Global Incident Response Hotline (24h)
+1 (760) 476-3964 (Company 3E for Bayer AG, Crop Science Division)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Classification in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.
Reproductive toxicity: Category 2
H361d Suspected of damaging the unborn child.
Acute aquatic toxicity: Category 1
H400 Very toxic to aquatic life.
Chronic aquatic toxicity: Category 1
H410 Very toxic to aquatic life with long lasting effects.

2.2 Label elements
Labelling in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.
Hazard label for supply/use required.

Hazardous components which must be listed on the label:
- Isoxaflutole
- Cyprosulfamide
Signal word: Warning

Hazard statements

H361d Suspected of damaging the unborn child.
H410 Very toxic to aquatic life with long lasting effects.
EUH401 To avoid risks to human health and the environment, comply with the instructions for use.
EUH208 Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

Precautionary statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P501 Dispose of contents/container in accordance with local regulation.

2.3 Other hazards
No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature
Suspension concentrate (=flowable concentrate)(SC)
Isoxaflutole/Cyprosulfamide 240:240 g/l

Hazardous components

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS-No. / EC-No. / REACH Reg. No.</th>
<th>Classification</th>
<th>Conc. [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoxaflutole</td>
<td>141112-29-0</td>
<td>Repr. 2, H361d</td>
<td>20,30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aquatic Acute 1, H400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aquatic Chronic 1, H410</td>
<td></td>
</tr>
<tr>
<td>Cyprosulfamide</td>
<td>221667-31-8 485-320-2</td>
<td>Not classified</td>
<td>20,30</td>
</tr>
<tr>
<td>D-Glucopyranose, oligomeric, C9-11-alkyl glycosides</td>
<td>132778-08-6</td>
<td>Eye Dam. 1, H318</td>
<td>&gt;= 3,0 – &lt;= 10,0</td>
</tr>
<tr>
<td>1,2-Benzisothiazol-3(2H)-one</td>
<td>2634-33-5 220-120-9</td>
<td>Eye Dam. 1, H318</td>
<td>&gt;= 0,005 – &lt; 0,05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aquatic Acute 1, H400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute Tox. 4, H302</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin Sens. 1, H317</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin Irrit. 2, H315</td>
<td></td>
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</tbody>
</table>

Further information

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS-No. / EC-No. / REACH Reg. No.</th>
<th>M-Factor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoxaflutole</td>
<td>141112-29-0</td>
<td>10 (acute), 100 (chronic)</td>
</tr>
</tbody>
</table>
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Move out of dangerous area. Remove contaminated clothing immediately and dispose of safely.

Inhalation
Move the victim to fresh air and keep at rest. If symptoms persist, call a physician.

Skin contact
Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 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. Get medical attention if irritation develops and persists.

Ingestion
Rinse mouth. Keep at rest. Do NOT induce vomiting. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms
Local:, To date no symptoms are known.
Systemic:, To date no symptoms are known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment
Local treatment: Initial treatment: symptomatic.
Systemic treatment: Initial treatment: symptomatic. Carefully monitor the liver functions. Gastric lavage is not normally required. However, if a significant amount (more than a mouthful) has been ingested, administer activated charcoal and sodium sulphate. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable
High volume water jet

5.2 Special hazards arising from the substance or mixture

Dangerous gases are evolved in the event of a fire.

5.3 Advice for firefighters

Special protective equipment for firefighters
In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.
Further information

Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Whenever possible, contain fire-fighting water by diking area with sand or earth.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Precautions

Keep people away from and upwind of spill/leak. Avoid contact with spilled product or contaminated surfaces. When dealing with a spillage do not eat, drink or smoke. Use personal protective equipment.

6.2 Environmental precautions

Do not allow to get into surface water, drains and ground water.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice

Check also for any local site procedures.

6.4 Reference to other sections

Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling
Use only in area provided with appropriate exhaust ventilation.

Advice on protection against fire and explosion
Keep away from heat and sources of ignition.

Hygiene measures
Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash hands before breaks and immediately after handling the product. Remove contaminated clothing immediately and dispose of safely.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers
Store in a place accessible by authorized persons only. Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from freezing. Keep away from direct sunlight.

Advice on common storage
Keep away from food, drink and animal feedingstuffs.

Suitable materials
Coex EVOH (1000L IBC)

7.3 Specific end use(s)
Refer to the label and/or leaflet.
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoxaflutole</td>
<td>141112-29-0</td>
<td>0,6 mg/m³ (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Cyprosulfamide</td>
<td>221667-31-8</td>
<td>10 mg/m³ (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
</tbody>
</table>

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

8.2 Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection
Respiratory protection is not required under anticipated circumstances of exposure.
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 e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.

Hand protection
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Wash gloves when contaminated. Dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet.

Material  Nitrile rubber
Rate of permeability  > 480 min
Glove thickness  > 0,4 mm
Protective index  Class 6
Directive  Protective gloves complying with EN 374.

Eye protection
Wear goggles (conforming to EN166, Field of Use = 5 or equivalent).

Skin and body protection
Wear standard coveralls and Category 3 Type 6 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 chemical protection suit and should be professionally laundered frequently.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form  suspension
Colour: white
Odour: weak, characteristic
pH: 4 - 6 at 100 % (23 °C)
Flash point: >100 °C
Ignition temperature: 450 °C
Density: ca. 1,18 g/cm³ at 20 °C
Water solubility: miscible
Partition coefficient: n-octanol/water
Isoxaflutole: log Pow: 2,32 at 20 °C
Cyprosulfamide: log Pow: -0,8
Viscosity, kinematic: 143 mm²/s Shear rate of 100/sec
Surface tension: 26,8 mN/m at 25 °C
Oxidizing properties: No oxidizing properties
Explosivity: Not explosive
9.2 Other information: Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
Thermal decomposition: Stable under normal conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No hazardous reactions when stored and handled according to prescribed instructions.

10.4 Conditions to avoid
Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Store only in the original container.

10.6 Hazardous decomposition products
No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute oral toxicity: LD50 (Rat) > 5,000 mg/kg
Test conducted with a similar formulation.

Acute inhalation toxicity: LC50 (Rat) > 2,674 mg/l
Exposure time: 4 h
Test conducted with a similar formulation.

Acute dermal toxicity: LD50 (Rat) > 2,000 mg/kg
Test conducted with a similar formulation.
Skin irritation  No skin irritation (Rabbit)
Test conducted with a similar formulation.

Eye irritation  No eye irritation (Rabbit)
Test conducted with a similar formulation.

Sensitisation  Non-sensitizing. (Mouse)
OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment STOT Specific target organ toxicity – repeated exposure
Isoxaflutole caused specific target organ toxicity in experimental animal studies in the following organ(s): Liver, Thyroid. The observed effects do not appear to be relevant for humans.
Cyprosulfamide did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity
Isoxaflutole was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Cyprosulfamide was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity
Isoxaflutole caused at high dose levels an increased incidence of tumours in the following organ(s): Liver. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.
Cyprosulfamide caused at high dose levels an increased incidence of tumours in the following organ(s): urinary bladder, Kidney. The tumours seen with Cyprosulfamide were caused through the chronic irritation due to the presence of bladder stones. The mechanism that triggers tumours in rodents is not relevant for the low exposures encountered under normal use conditions.

Assessment toxicity to reproduction
Isoxaflutole did not cause reproductive toxicity in a two-generation study in rats.
Cyprosulfamide did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity
Isoxaflutole caused developmental toxicity only at dose levels toxic to the dams. Isoxaflutole caused a delayed ossification of foetuses. The developmental effects seen with Isoxaflutole are related to maternal toxicity.
Cyprosulfamide did not cause developmental toxicity in rats and rabbits.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
Toxicity to fish  LC50 (Oncorhynchus mykiss (rainbow trout)) > 100 mg/l
Exposure time: 96 h
Test conducted with a similar formulation.

Toxicity to aquatic invertebrates  EC50 (Daphnia magna (Water flea)) > 100 mg/l
Exposure time: 48 h
Test conducted with a similar formulation.

Toxicity to aquatic plants  EC50 (Raphidocelis subcapitata (freshwater green alga)) 19,8 mg/l
Exposure time: 72 h
Test conducted with a similar formulation.

(Lemma gibba (gibbous duckweed)) 0,0494 mg/l
Exposure time: 168 h
12.2 Persistence and degradability

Biodegradability
- Isoxaflutole: Not rapidly biodegradable
- Cyprosulfamide: Not rapidly biodegradable

Koc
- Isoxaflutole: Koc: 112
- Cyprosulfamide: Koc: 8 - 75

12.3 Bioaccumulative potential

Bioaccumulation
- Isoxaflutole: Bioconcentration factor (BCF) 11
  Does not bioaccumulate.
- Cyprosulfamide: Does not bioaccumulate.

12.4 Mobility in soil

Mobility in soil
- Isoxaflutole: Moderately mobile in soils
- Cyprosulfamide: Mobile in soils

12.5 Results of PBT and vPvB assessment

PBT and vPvB assessment
- Isoxaflutole: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).
- Cyprosulfamide: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

12.6 Other adverse effects

Additional ecological information
- 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.

Contaminated packaging
- Triple rinse containers.
- Do not re-use empty containers.
- Not completely emptied packagings should be disposed of as hazardous waste.

Waste key for the unused product
02 01 08* agrochemical waste containing dangerous substances

SECTION 14: TRANSPORT INFORMATION

ADR/RID/ADN

14.1 UN number
3082
14.2 Proper shipping name  ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ISOXAFLUTOLE SOLUTION)

14.3 Transport hazard class(es)  9
14.4 Packing group  III
14.5 Environm. Hazardous Mark  YES
Hazard no.  90
Tunnel Code  E

This classification is in principle not valid for carriage by tank vessel on inland waterways. Please refer to the manufacturer for further information.

IMDG
14.1 UN number  3082
14.2 Proper shipping name  ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ISOXAFLUTOLE SOLUTION)

14.3 Transport hazard class(es)  9
14.4 Packing group  III
14.5 Marine pollutant  YES

IATA
14.1 UN number  3082
14.2 Proper shipping name  ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ISOXAFLUTOLE SOLUTION)

14.3 Transport hazard class(es)  9
14.4 Packing group  III
14.5 Environm. Hazardous Mark  YES

14.6 Special precautions for user
See sections 6 to 8 of this Safety Data Sheet.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
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
Further information
WHO-classification: III (Slightly hazardous)

15.2 Chemical Safety Assessment
A chemical safety assessment is not required.

SECTION 16: OTHER INFORMATION

Text of the hazard statements mentioned in Section 3
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H361d Suspected of damaging the unborn child.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways</td>
</tr>
<tr>
<td>ADR</td>
<td>European Agreement concerning the International Carriage of Dangerous Goods by Road</td>
</tr>
<tr>
<td>ATE</td>
<td>Acute toxicity estimate</td>
</tr>
<tr>
<td>CAS-Nr.</td>
<td>Chemical Abstracts Service number</td>
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<tr>
<td>Conc.</td>
<td>Concentration</td>
</tr>
<tr>
<td>EC-No.</td>
<td>European community number</td>
</tr>
<tr>
<td>ECx</td>
<td>Effective concentration to x %</td>
</tr>
<tr>
<td>EINECS</td>
<td>European inventory of existing commercial substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European list of notified chemical substances</td>
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<td>EN</td>
<td>European Standard</td>
</tr>
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<td>EU</td>
<td>European Union</td>
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<td>IATA</td>
<td>International Air Transport Association</td>
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<td>IBC</td>
<td>International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)</td>
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<tr>
<td>ICx</td>
<td>Inhibition concentration to x %</td>
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<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods</td>
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<tr>
<td>LCx</td>
<td>Lethal concentration to x %</td>
</tr>
<tr>
<td>LDx</td>
<td>Lethal dose to x %</td>
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<td>LOEC/LOEL</td>
<td>Lowest observed effect concentration/level</td>
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<td>MARPOL</td>
<td>MARPOL: International Convention for the prevention of marine pollution from ships</td>
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<tr>
<td>N.O.S.</td>
<td>Not otherwise specified</td>
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<tr>
<td>NOEC/NOEL</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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<tr>
<td>RID</td>
<td>Regulations concerning the International Carriage of Dangerous Goods by Rail</td>
</tr>
<tr>
<td>TWA</td>
<td>Time weighted average</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>WHO</td>
<td>World health organisation</td>
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The information contained within this Safety Data Sheet is in accordance with the guidelines established by Regulation (EU) 1907/2006 and Regulation (EU) 2015/830 amending Regulation (EU) No 1907/2006 and any subsequent amendments. This data sheet complements the user's instructions, but does not replace them. The information it contains is based on the knowledge available about the product concerned at the time it was compiled. Users are further reminded of the possible risks of using a product for purposes other than those for which it was intended. The required information complies with current EEC legislation. Addressees are requested to observe any additional national requirements.

Reason for Revision: Safety Data Sheet according to Regulation (EU) No. 2015/830. Section 3: Composition / Information on Ingredients. Section 8: Exposure Controls / Personal Protection. Section 11: Toxicological information on STOT (Specific Target Organ Toxicity) and CMR (Carcinogenic, Mutagenic and toxic to Reproduction).
Changes since the last version are highlighted in the margin. This version replaces all previous versions.