SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

ADENGO SC465 4X5L BOT NBC
Version 4 / EU 102000016311
Revision Date: 18.02.2016
Print Date: 14.11.2017

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

1.1 Product identifier
Trade name: ADENGO SC465 4X5L BOT NBC
Product code (UVP): 79021534

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
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
- Thiencarbazone-methyl
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.
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/Thiencarbazone-methyl 225:150:90 g/l

Hazardous components

Hazard statements according to Regulation (EC) No. 1272/2008

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoxaflutole</td>
<td>141112-29-0</td>
<td>Repr. 2, H361d Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
<td>19,00</td>
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<tr>
<td>Cyprosulfamide</td>
<td>221667-31-8 485-320-2</td>
<td>Not classified</td>
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<tr>
<td>Thiencarbazone-methyl</td>
<td>317815-83-1</td>
<td>Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
<td>7,60</td>
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<tr>
<td>Tristyrylphenol polyethyleneglycol phosphoric acid ester</td>
<td>114535-82-9</td>
<td>Eye Irrit. 2, H319</td>
<td>&gt; 3,00 – &lt; 10,00</td>
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<tr>
<td>Alkyl polysaccharide</td>
<td>68515-73-1 500-220-1</td>
<td>Eye Dam. 1, H318</td>
<td>&gt; 1,00 – &lt; 5,00</td>
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<td>1,2-Benzisothiazol-3(2H)-one</td>
<td>2634-33-5 220-120-9</td>
<td>Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318</td>
<td>&gt; 0,005 – &lt; 0,05</td>
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</tbody>
</table>
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Skin Sens. 1, H317
Aquatic Acute 1, H400

<table>
<thead>
<tr>
<th>Substance</th>
<th>Effect Class</th>
<th>M-Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>Not classified</td>
<td>&gt; 1.00</td>
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<tr>
<td>Isoxaflutole</td>
<td>141112-29-0</td>
<td>M-Factor: 10 (acute), 100 (chronic)</td>
</tr>
<tr>
<td>Thiencarbazone-methyl</td>
<td>317815-83-1</td>
<td>M-Factor: 100 (acute)</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**
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.
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Unsuitable
5.2 Special hazards arising from the substance or mixture
5.3 Advice for firefighters
Further information

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
No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice. Ensure adequate 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 soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be
7.2 Conditions for safe storage, including any incompatibilities

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

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

Suitable materials
HDPE (high density polyethylene)

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>
<tr>
<td>Thiencarbazone-methyl</td>
<td>317815-83-1</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.
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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form  suspension

Colour  white to light beige

Odour  characteristic, weak

pH  2.5 - 4.0 at 1 % (23 °C) (deionized water)

Flash point  >99 °C

Ignition temperature  420 °C

Auto-ignition temperature  420 °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

Thiencarbazone-methyl: log Pow: -0.13

Cyprosulfamide: log Pow: -0.8

Surface tension  36 mN/m at 25 °C

Impact sensitivity  Not impact sensitive.

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

Acute inhalation toxicity
LC50 (Rat) > 2,607 mg/l
Exposure time: 4 h
Highest attainable concentration.
No deaths
Determined in the form of a respirable aerosol.

Acute dermal toxicity
LD50 (Rat) > 2,000 mg/kg

Skin irritation
No skin irritation (Rabbit)

Eye irritation
No eye irritation (Rabbit)

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

Assessment repeated dose toxicity
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.
Thiencarbazone-methyl did not cause specific target organ toxicity in experimental animal studies.
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.
Thiencarbazone-methyl 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.
Thiencarbazone-methyl was not carcinogenic in a lifetime feeding study in rats. Thiencarbazone-methyl caused at high dose levels an increased incidence of tumours in mice in the following organ(s): urinary bladder. The tumours seen with Thiencarbazone-methyl were caused through the chronic irritation due to the presence of bladder stones.
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.
Thiencarbazone-methyl 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.
Thiencarbazone-methyl did not cause developmental toxicity in rats and rabbits.
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

Toxicity to aquatic invertebrates
EC50 (Daphnia magna (Water flea)) > 100 mg/l
Exposure time: 48 h

Toxicity to aquatic plants
EC50 (Raphidocelis subcapitata (freshwater green alga)) 25,3 mg/l
Exposure time: 72 h
(Lemna gibba (gibbous duckweed)) 0,0165 mg/l
Exposure time: 168 h

12.2 Persistence and degradability
Biodegradability
Isoxaflutole: Not rapidly biodegradable
Thiencarbazone-methyl: Not rapidly biodegradable
Cyprosulfamide: Not rapidly biodegradable

Koc
Isoxaflutole: Koc: 112
Thiencarbazone-methyl: Koc: 100
Cyprosulfamide: Koc: 8 - 75

12.3 Bioaccumulative potential
Bioaccumulation
Isoxaflutole: Bioconcentration factor (BCF) 11
Does not bioaccumulate.
Thiencarbazone-methyl: Does not bioaccumulate.
Cyprosulfamide: Does not bioaccumulate.

12.4 Mobility in soil
Mobility in soil
Isoxaflutole: Moderately mobile in soils
Thiencarbazone-methyl: 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).

Thiencarbazone-methyl: 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 further ecological information is available.

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

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.
H319  Causes serious eye irritation.
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

ADN  European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR  European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE  Acute toxicity estimate
CAS-Nr.  Chemical Abstracts Service number
Conc.  Concentration
EC-No.  European community number
ECx  Effective concentration to x %
EINECS  European inventory of existing commercial substances
ELINCS  European list of notified chemical substances
EN  European Standard
EU  European Union
IATA  International Air Transport Association
IBC  International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)
ICx  Inhibition concentration to x %
IMDG  International Maritime Dangerous Goods
LCx  Lethal concentration to x %
LDx  Lethal dose to x %
LOEC/LOEL  Lowest observed effect concentration/level
MARPOL  MARPOL: International Convention for the prevention of marine pollution from ships
N.O.S.  Not otherwise specified
NOEC/NOEL  No observed effect concentration/level
OECD  Organization for Economic Co-operation and Development
RID  Regulations concerning the International Carriage of Dangerous Goods by Rail
TWA  Time weighted average
UN  United Nations
WHO  World health organisation

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. Addresseees are requested to observe any additional national requirements.


Changes since the last version are highlighted in the margin. This version replaces all previous versions.