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

Product identifier
Trade name: DIFLEXX® DUO
Product code (UVP): 80999445
SDS Number: 102000028521
EPA Registration No.: 264-1184

Relevant identified uses of the substance or mixture and uses advised against
Use: Herbicide
Restrictions on use: See product label for restrictions.

Information on supplier
Supplier: Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Responsible Department: Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days): 1-800-334-7577
Product Information Telephone Number: 1-866-99BAYER (1-866-992-2937)

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Eye irritation: Category 2B
Reproductive toxicity, Specific target organ toxicity - repeated exposure: Category 2
Acute toxicity(Inhalation): Category 4

Signal word: Warning

Hazard statements
Suspected of damaging fertility or the unborn child.
May cause damage to organs (Eyes, Kidney, Liver) through prolonged or repeated exposure.
Causes eye irritation.
Harmful if inhaled.

Precautionary statements
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not breathe mist.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
IF exposed or concerned: Get medical advice/attention.
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: Get medical advice/attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
Store locked up.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)
No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Concentration % by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicamba</td>
<td>1918-00-9</td>
<td>13.36</td>
</tr>
<tr>
<td>Tembotrione</td>
<td>335104-84-2</td>
<td>2.83</td>
</tr>
<tr>
<td>Cyprosulfamide</td>
<td>221667-31-8</td>
<td>0.97</td>
</tr>
<tr>
<td>Diglycolamine</td>
<td>929-06-6</td>
<td>6 – 8</td>
</tr>
<tr>
<td>Alkyl polysaccharide</td>
<td>68515-73-1</td>
<td>1 – 3</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy-, mono-C8-10-alkyl ethers, phosphates</td>
<td>68130-47-2</td>
<td>2 – 6</td>
</tr>
<tr>
<td>Citric acid</td>
<td>77-92-9</td>
<td>1.1 – 1.8</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed
Symptoms
To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed
Treatment
Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media
Suitable
Water spray, Foam, Carbon dioxide (CO2), Dry chemical

Unsuitable
None known.

Special hazards arising from the substance or mixture
Dangerous gases are evolved in the event of a fire.

Advice for firefighters
Special protective equipment for firefighters
Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information
Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point
c.a. 103 °C

Auto-ignition temperature
400 °C / 752 °F

Lower explosion limit
No data available

Upper explosion limit
No data available

Explosivity
Not explosive
92/69/EEC, A.14 / OECD 113
SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions
Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

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
Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

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

Precautions for safe handling

Advice on safe handling
Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Hygiene measures
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers
Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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>Dicamba</td>
<td>1918-00-9</td>
<td>50ug/m3 (ST ESL)</td>
<td>03 2014</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Substance</td>
<td>CAS Number</td>
<td>Exposure Value</td>
<td>Date</td>
<td>Source</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------</td>
<td>----------------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>Dicamba</td>
<td>1918-00-9</td>
<td>5ug/m³ (AN ESL)</td>
<td>03 2014</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Tembotrione</td>
<td>335104-84-2</td>
<td>0.15 mg/m³ (SK-SEN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyprosulfamide</td>
<td>221667-31-8</td>
<td>10 mg/m³ (TWA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diglycolamine</td>
<td>929-06-6</td>
<td>380ug/m³ (ST ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Diglycolamine</td>
<td>929-06-6</td>
<td>38ug/m³ (AN ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Alkyl polysaccharide</td>
<td>68515-73-1</td>
<td>600ug/m³ (ST ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Alkyl polysaccharide</td>
<td>68515-73-1</td>
<td>60ug/m³ (AN ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Citric acid</td>
<td>77-92-9</td>
<td>100ug/m³ (ST ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Citric acid</td>
<td>77-92-9</td>
<td>10ug/m³ (ST ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Glycerine (Respirable fraction.)</td>
<td>56-81-5</td>
<td>5 mg/m³ (PEL)</td>
<td>02 2006</td>
<td>OSHA Z1</td>
</tr>
<tr>
<td>Glycerine (Total dust.)</td>
<td>56-81-5</td>
<td>15 mg/m³ (PEL)</td>
<td>02 2006</td>
<td>OSHA Z1</td>
</tr>
<tr>
<td>Glycerine (Respirable fraction.)</td>
<td>56-81-5</td>
<td>5 mg/m³ (TWA)</td>
<td>1989</td>
<td>OSHA Z1A</td>
</tr>
<tr>
<td>Glycerine (Total dust.)</td>
<td>56-81-5</td>
<td>10 mg/m³ (TWA)</td>
<td>1989</td>
<td>OSHA Z1A</td>
</tr>
<tr>
<td>Glycerine (Total dust and mist.)</td>
<td>56-81-5</td>
<td>10 mg/m³ (TWA)</td>
<td>06 2008</td>
<td>TN OEL</td>
</tr>
<tr>
<td>Glycerine (Respirable fraction and dust or fume.)</td>
<td>56-81-5</td>
<td>5 mg/m³ (TWA)</td>
<td>06 2008</td>
<td>TN OEL</td>
</tr>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>10000ug/m³ (ST ESL)</td>
<td>03 2014</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>50ug/m³ (ST ESL)</td>
<td>03 2014</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>100ug/m³ (AN ESL)</td>
<td>03 2014</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>5ug/m³ (AN ESL)</td>
<td>03 2014</td>
<td>TX ESL</td>
</tr>
</tbody>
</table>

*OES BCS: Internal Bayer CropScience “Occupational Exposure Standard”

**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**

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in
accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection
Chemical resistant nitrile rubber gloves

Eye protection
Tightly fitting safety goggles

Skin and body protection
Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
light beige

Physical State
suspension

Odor
weak acid-like

Odour Threshold
No data available

pH
3.45 - 3.70 at 100 % (23 °C)

Vapor Pressure
No data available

Vapor Density (Air = 1)
No data available

Density
1.13 g/cm³ at 20 °C

Evaporation rate
No data available

Boiling Point
No data available

Melting / Freezing Point
No data available

Water solubility
dispersible

Minimum Ignition Energy
Not applicable

Decomposition temperature
No data available

Partition coefficient: n-octanol/water
Not applicable

Viscosity
120 - 170 mPa.s at 20 °C Velocity gradient 20 /s
45 - 80 mPa.s at 20 °C Velocity gradient 100 /s

Flash point
c.a. 103 °C

Auto-ignition temperature
400 °C / 752 °F

Lower explosion limit
No data available

Upper explosion limit
No data available

Explosivity
Not explosive
92/69/EEC, A.14 / OECD 113
SECTION 10: STABILITY AND REACTIVITY

Reactivity
Thermal decomposition  No data available
Chemical stability   Stable under normal conditions.
Possibility of hazardous reactions  No dangerous reaction known under conditions of normal use.

Conditions to avoid  Extremes of temperature and direct sunlight.

Incompatible materials  No data available

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

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes  Eye contact, Skin contact, Inhalation, Ingestion

Immediate Effects
Eye  Moderate eye irritation may occur.
Skin  May cause skin irritation.

Information on toxicological effects
Acute oral toxicity  LD50 (female Rat) > 5,000 mg/kg
Acute inhalation toxicity  LC50 (male/female combined Rat) > 2.07 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.
highest concentration tested
Acute dermal toxicity  LD50 (male/female combined Rat) > 5,000 mg/kg
Skin irritation  No skin irritation (Rabbit)
Eye irritation  Moderate eye irritation. (Rabbit)
Sensitisation  Non-sensitizing. (Mouse)
OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment repeated dose toxicity
Dicamba did not cause specific target organ toxicity in experimental animal studies.
Tembotrione caused specific target organ toxicity in experimental animal studies in the following organ(s): Eyes, Kidney, Liver.
Cyprosulfamide did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity
Dicamba was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Tembotrione was not mutagenic or genotoxic based on the overall weight of evidence 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**

Tembotrione caused an increased incidence of tumours in rats in the following organ(s): Cornea. 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.

**ACGIH**
None.

**NTP**
None.

**IARC**
None.

**OSHA**
None.

**Assessment toxicity to reproduction**

Dicamba did not cause reproductive toxicity in a two-generation study in rats. Tembotrione 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**

Dicamba did not cause developmental toxicity in rats and rabbits. Tembotrione caused developmental toxicity only at dose levels toxic to the dams. Tembotrione caused a delayed ossification of foetuses, an increased incidence of variations. The developmental effects seen with Tembotrione are related to maternal toxicity. Cyprosulfamide did not cause developmental toxicity in rats and rabbits.

**Further information**

Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the active ingredient(s).

---

**SECTION 12: ECOLOGICAL INFORMATION**

**Toxicity to fish**

\[ \text{LC50 (Oncorhynchus mykiss (rainbow trout))} > 100 \text{ mg/l} \]

**Exposure time:** 96 h

The value mentioned relates to tembotrione.

**Toxicity to aquatic**

\[ \text{EC50 (Daphnia magna (Water flea))} \ 49.8 \text{ mg/l} \]
invertebrates
Exposure time: 48 h
The value mentioned relates to tembotrione.

Toxicity to aquatic plants
EC50 (Raphidocelis subcapitata (freshwater green alga)) 0.75 mg/l
Growth rate; Exposure time: 96 h
The value mentioned relates to tembotrione.

EC50 (Lemna gibba (gibbous duckweed)) 0.00848 mg/l
Exposure time: 7 d
The value mentioned relates to tembotrione.

NOEC (Lemna gibba (gibbous duckweed)) 0.0032 mg/l
The value mentioned relates to tembotrione.

Biodegradability
Dicamba: Not rapidly biodegradable
Tembotrione: Not rapidly biodegradable
Cyprosulfamide: Not rapidly biodegradable

Koc
Dicamba: Koc: 5.1
Tembotrione: Koc: 66
Cyprosulfamide: Koc: 8 - 75

Bioaccumulation
Dicamba: Bioconcentration factor (BCF) 15
Does not bioaccumulate.
Tembotrione: Does not bioaccumulate.
Cyprosulfamide: Does not bioaccumulate.

Mobility in soil
Dicamba: Highly mobile in soils
Tembotrione: Mobile in soils
Cyprosulfamide: Mobile in soils

Environmental precautions
Do not allow to get into surface water, drains and ground water.
Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
Do not apply when weather conditions favor runoff or drift.
Drift or runoff from treated areas may adversely affect non-target plants.
Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
Dispose in accordance with all local, state/provincial and federal regulations.
Follow container label instructions for disposal of wastes generated during use in compliance with the product label.

Contaminated packaging
Do not re-use empty containers.
Dispose of empty container in a sanitary landfill or by incineration, or, if
allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.

**RCRA Information**
Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user’s responsibility. RCRA classification may apply.

### SECTION 14: TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>49CFR</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UN number</strong></td>
<td><strong>3082</strong></td>
<td><strong>3082</strong></td>
</tr>
<tr>
<td><strong>Class</strong></td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td><strong>Packaging group</strong></td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td><strong>Proper shipping name</strong></td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (DICAMBA)</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TEMBOTRIONE SOLUTION)</td>
</tr>
<tr>
<td><strong>RQ</strong></td>
<td>Reportable Quantity is reached with 7,485 lb of product.</td>
<td></td>
</tr>
</tbody>
</table>

**IMDG**

<table>
<thead>
<tr>
<th><strong>Marine pollutant</strong></th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proper shipping name</strong></td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TEMBOTRIONE SOLUTION)</td>
</tr>
</tbody>
</table>

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

### SECTION 15: REGULATORY INFORMATION

| EPA Registration No. | 264-1184 |
SAFETY DATA SHEET

DIFLEXX® DUO
Version 2.0 / USA
102000028521

US Federal Regulations
TSCA list
Cyprosulfamide 221667-31-8
Diglycolamine 929-06-6
Alkyl polysaccharide 68515-73-1
Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy-, mono-C8-10-alkyl ethers, phosphates 68130-47-2
Citric acid 77-92-9

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
Cyprosulfamide 221667-31-8

SARA Title III - Section 302 - Notification and Information
None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting
Dicamba 1918-00-9 25,000lbs

US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
Dicamba 1918-00-9 CA, CT, IL, NJ, RI
Diglycolamine 929-06-6 CT

Canadian Regulations
Canadian Domestic Substance List
None.

Environmental
CERCLA
Dicamba 1918-00-9 1,000 lbs

Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
None.

EPA/FIFRA Information:
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:
Signal word: Caution!

Hazard statements: Moderate eye irritation.
Avoid contact with skin, eyes and clothing.
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms
49CFR Code of Federal Regulations, Title 49
ACGIH US. ACGIH Threshold Limit Values
CAS-Nr. Chemical Abstracts Service number
EINECS European inventory of existing commercial substances
ELINCS European list of notified chemical substances
IARC US. IARC Monographs on Occupational Exposures to Chemical Agents
IATA International Air Transport Association
IMDG International Maritime Dangerous Goods
N.O.S. Not otherwise specified
NTP US. National Toxicology Program (NTP) Report on Carcinogens
OECD Organization for Economic Co-operation and Development
TDG Transportation of Dangerous Goods
TWA Time weighted average
UN United Nations
WHO World health organisation

NFPA 704 (National Fire Protection Association):
Health - 1 Flammability - 1 Instability - 0 Others - none

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

Reason for Revision: Reviewed and updated for general editorial purposes. The following sections have been revised: Section 2: Hazards Identification. Section 11: Toxicological Information.

Revision Date: 02/19/2016

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.