

SAFETY DATA SHEET



DIFLEXX® DUO

Version 2.0 / USA
102000028521

1/12
Revision Date: 02/19/2016
Print Date: 02/19/2016

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.

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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.

Get medical advice/ attention if you feel unwell.

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

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

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.

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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 (CO ₂), 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	ca. 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

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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

Components	CAS-No.	Control parameters	Update	Basis
Dicamba	1918-00-9	50ug/m3 (ST ESL)	03 2014	TX ESL

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Dicamba	1918-00-9	5ug/m3 (AN ESL)	03 2014	TX ESL
Tembotrione	335104-84-2	0.15 mg/m3 (SK-SEN)		OES BCS*
Cyprosulfamide	221667-31-8	10 mg/m3 (TWA)		OES BCS*
Diglycolamine	929-06-6	380ug/m3 (ST ESL)	07 2011	TX ESL
Diglycolamine	929-06-6	38ug/m3 (AN ESL)	07 2011	TX ESL
Alkyl polysaccharide	68515-73-1	600ug/m3 (ST ESL)	07 2011	TX ESL
Alkyl polysaccharide	68515-73-1	60ug/m3 (AN ESL)	07 2011	TX ESL
Citric acid	77-92-9	100ug/m3 (ST ESL)	07 2011	TX ESL
Citric acid	77-92-9	10ug/m3 (AN ESL)	07 2011	TX ESL
Glycerine (Respirable fraction.)	56-81-5	5 mg/m3 (PEL)	02 2006	OSHA Z1
Glycerine (Total dust.)	56-81-5	15 mg/m3 (PEL)	02 2006	OSHA Z1
Glycerine (Respirable fraction.)	56-81-5	5 mg/m3 (TWA)	1989	OSHA Z1A
Glycerine (Total dust.)	56-81-5	10 mg/m3 (TWA)	1989	OSHA Z1A
Glycerine (Total dust and mist.)	56-81-5	10 mg/m3 (TWA)	06 2008	TN OEL
Glycerine (Respirable fraction and dust or fume.)	56-81-5	5 mg/m3 (TWA)	06 2008	TN OEL
Glycerine	56-81-5	1000ug/m3 (ST ESL)	03 2014	TX ESL
Glycerine	56-81-5	50ug/m3 (ST ESL)	03 2014	TX ESL
Glycerine	56-81-5	100ug/m3 (AN ESL)	03 2014	TX ESL
Glycerine	56-81-5	5ug/m3 (AN ESL)	03 2014	TX ESL

*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

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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/cm ³ 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	ca. 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

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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.

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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

Dicamba was not carcinogenic in lifetime feeding studies in rats and mice.

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

LC50 (Oncorhynchus mykiss (rainbow trout)) > 100 mg/l
Exposure time: 96 h
The value mentioned relates to tembotrione.

Toxicity to aquatic

EC50 (Daphnia magna (Water flea)) 49.8 mg/l

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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

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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

49CFR

UN number	3082
Class	9
Packaging group	III
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (DICAMBA)
RQ	Reportable Quantity is reached with 7,485 lb of product.

IMDG

UN number	3082
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TEMBOTRIONE SOLUTION)

IATA

UN number	3082
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TEMBOTRIONE SOLUTION)

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

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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
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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
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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:

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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

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

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

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

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

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