



EXCALIBUR®

Version 2.1 (replaces: Version 2.0)
Revision Date 17.04.2014

Ref. 130000000797

This Safety Data Sheet adheres to the standards and regulatory requirements of Great Britain and may not meet the regulatory requirements in other countries.

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

1.1. Product identifier

Product name : EXCALIBUR®
Synonyms : B11951949
DPX-HGC52 50WG

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

Use of the Substance/Mixture : Herbicide

1.3. Details of the supplier of the safety data sheet

Company : Du Pont (UK) Limited
Wedgwood Way
Stevenage, Herts. SG1 4QN
United Kingdom
Telephone : +44 (0) 1438 734 000
E-mail address : sds-support@che.dupont.com

1.4. Emergency telephone number

Emergency telephone number : +44 (0) 8456 006 640

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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.
Dangerous for the environment : R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2. Label elements



Environment

Warning



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H410	Very toxic to aquatic life with long lasting effects.
Special labelling of certain substances and mixtures	EUH401: To avoid risks to human health and the environment, comply with the instructions for use.,
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.

2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on ingredients

3.1. Substances
not applicable

3.2. Mixtures

Registration number	Classification according to Directive 67/548/EEC	Classification according to Regulation (EU) 1272/2008 (CLP)	Concentration
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Diflufenican (CAS-No.83164-33-4)

	R52/53	Aquatic Acute 1; H400 Aquatic Chronic 3; H412	44.4 %
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Flupyr-sulfuron-methyl-sodium (CAS-No.144740-54-5)

	N;R50/53	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	5.6 %
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The above products are REACH compliant; Registration number(s) may not be provided because substance(s) are exempted, not yet registered under REACH or are registered under another regulatory process (biocide uses, plant protection products), etc.

For the full text of the R-phrases mentioned in this Section, see Section 16.
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	:	Never give anything by mouth to an unconscious person. For specialist advice physicians should contact the National Poisons Information Service: Tel. 111 for England and Wales and Tel. 08454 24 24 24 for Scotland.
Inhalation	:	Move to fresh air. Consult a physician after significant exposure. Artificial respiration and/or oxygen may be necessary.
Skin contact	:	Take off contaminated clothing and shoes immediately. Wash off immediately with soap and plenty of water. In the case of skin irritation or allergic reactions



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- see a physician. Wash contaminated clothing before re-use.
- Eye contact : If easy to do, remove contact lens, if worn. Hold eye open and rinse slowly and gently with water for 15-20 minutes. If eye irritation persists, consult a specialist.
- Ingestion : Obtain medical attention. DO NOT induce vomiting unless directed to do so by a physician or poison control center. If victim is conscious: Rinse mouth with water.

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

- Symptoms : No cases of human intoxication are known and the symptoms of experimental intoxication are not known.

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

- Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray, Foam, Dry chemical, Carbon dioxide (CO₂)

- Extinguishing media which shall not be used for safety reasons : High volume water jet, (contamination risk)

5.2. Special hazards arising from the substance or mixture

- Specific hazards during firefighting : Hazardous decomposition products formed under fire conditions. Carbon dioxide (CO₂) Nitrogen oxides (NO_x)

5.3. Advice for firefighters

- Special protective equipment for firefighters : Wear full protective clothing and self-contained breathing apparatus.

- Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- : (on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers / tanks with water spray.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- Personal precautions : Control access to area. Avoid dust formation. Avoid breathing dust. Avoid contact with the skin and the eyes. Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.



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6.2. Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so. Use appropriate container to avoid environmental contamination. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained. If the spill area is porous, the contaminated material must be collected for subsequent treatment or disposal. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. Methods and materials for containment and cleaning up

Methods for cleaning up : Clean-up methods - small spillage Sweep up or vacuum up spillage and collect in suitable container for disposal.
Clean-up methods - large spillage Avoid dust formation. Knock down dust with water spray jet. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13). If spill area is on ground near valuable plants or trees, remove 5 cm of top soil after initial clean-up.

Other information : Never return spills in original containers for re-use. Dispose of in accordance with local regulations.

6.4. Reference to other sections

For personal protection see section 8., For disposal instructions see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling : Use only according to our recommendations. Use only clean equipment. Avoid contact with skin, eyes and clothing. Do not breathe dust or spray mist. Wear personal protective equipment. For personal protection see section 8. Prepare the working solution as given on the label(s) and/or the user instructions. Use prepared working solution as soon as possible - Do not store. Provide appropriate exhaust ventilation at places where dust is formed. Avoid exceeding of the given occupational exposure limits (see section 8).

Advice on protection against fire and explosion : Keep away from heat and sources of ignition. Avoid dust formation in confined areas. During processing, dust may form explosive mixture in air.

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 in properly labelled containers. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

Other data : Stable under recommended storage conditions.

7.3. Specific end use(s)

Plant protection products subject to Regulation (EC) No 1107/2009.



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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

If sub-section is empty then no values are applicable.

Components with workplace control parameters

Type Form of exposure	Control parameters	Update	Basis	Remarks
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Kaolin (CAS-No. 1332-58-7)

TWA Respirable dust.	2 mg/m ³	2007	EH40 WEL	
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Methanol (CAS-No. 67-56-1)

TWA	266 mg/m ³ 200 ppm	2007	EH40 WEL	
SKIN_DES		2007	EH40 WEL	Can be absorbed through skin.
STEL	333 mg/m ³ 250 ppm	2007	EH40 WEL	
SKIN_DES		12 2009	EU ELV	Can be absorbed through skin.
TWA	260 mg/m ³ 200 ppm	12 2009	EU ELV	Indicative

8.2. Exposure controls

Engineering measures : Ensure adequate ventilation, especially in confined areas. Provide for appropriate exhaust ventilation and dust collection at machinery.

Eye protection : Safety glasses with side-shields conforming to EN166

Hand protection : Material: Nitrile rubber
Glove thickness: 0.3 mm
Glove length: Standard glove type.
Protection index: Class 6
Wearing time: > 480 min
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. 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. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Gloves must be inspected prior to use. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Gauntlets shorter than 35 cm long shall be worn under the combination sleeve. Gloves must be rinsed thoroughly after use. Before removing gloves clean them with soap and water.

Skin and body protection : Manufacturing and processing work: Full protective clothing Type 5 (EN 13982-2)



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Mixer and loaders must wear: Full protective clothing Type 5 + 6 (EN ISO 13982-2 / EN 13034) Rubber apron Nitrile rubber boots (EN 13832-3 / EN ISO 20345).

Spray application - outdoor: Tractor / sprayer with hood: No personal body protection normally required. Tractor / sprayer without hood: Low application (horticulture, field crops): Full protective clothing Type 6 (EN 13034) Nitrile rubber boots (EN 13832-3 / EN ISO 20345).

When exceptional circumstances require an access to the treated area before the end of re-entry periods, wear full protective clothing Type 6 (EN 13034), nitrile rubber gloves class 3 (EN 374) and nitrile rubber boots (EN 13832-3 / EN ISO 20345).

To optimize the ergonomics it may be recommended to use cotton underwear when wearing some fabrics. Take advice from supplier. Garment materials that are resistant to both water vapour and air will maximise wearing comfort. Materials should be robust to maintain the integrity and barrier in use. The permeation resistance of the fabric must be verified independently of the « type » protection recommended, to ensure an appropriate performance level of the material adequate to the corresponding agent and type of exposure.

Protective measures : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. All chemical protective clothing should be visually inspected prior to use. Clothing and gloves should be replaced in case of chemical or physical damage or if contaminated. Only protected handlers may be in the area during application.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Regular cleaning of equipment, work area and clothing. Keep working clothes separately. Contaminated work clothing should not be allowed out of the workplace. Wash hands and face before breaks and immediately after handling the product. When using do not eat, drink or smoke. Keep away from food, drink and animal feedingstuffs. For environmental protection remove and wash all contaminated protective equipment before re-use. Remove clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing. Dispose of rinse water in accordance with local and national regulations.

Respiratory protection : Manufacturing and processing work: Half mask with a particle filter FFP1 (EN149)
Mixer and loaders must wear: Half mask with a particle filter FFP1 (EN149)
Spray application - outdoor: Tractor / sprayer with hood: No personal respiratory protective equipment normally required.
Tractor / sprayer without hood: Half mask with a particle filter P1 (EN 143).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form : granules
Colour : beige, brown
Odour : slight, acrid



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Odour Threshold	: not determined
pH	: 8.0 at 10 g/l (20 °C), Method: CIPAC MT 75.3
Melting point/range	: Not available for this mixture.
Boiling point/boiling range	: not applicable
Flash point	: not applicable
Flammability (solid, gas)	: Does not sustain combustion.
Thermal decomposition	: no data available
Auto-ignition temperature	: not auto-flammable
Oxidizing properties	: The product is not oxidizing.
Explosive properties	: Not explosive
Lower explosion limit/ lower flammability limit	: no data available
Upper explosion limit/ upper flammability limit	: no data available
Vapour pressure	: not applicable
Relative density	: not applicable
Bulk density	: 748 kg/m ³ , packed
Water solubility	: dispersible
Partition coefficient: n-octanol/water	: not applicable
Viscosity, kinematic	: not applicable
Evaporation rate	: not applicable

9.2. Other information

Phys.-chem./other information : No other data to be specially mentioned.

SECTION 10: Stability and reactivity

- 10.1. Reactivity** : No hazards to be specially mentioned.
- 10.2. Chemical stability** : The product is chemically stable under recommended conditions of storage, use and temperature.
- 10.3. Possibility of hazardous reactions** : No dangerous reaction known under conditions of normal use. Polymerization will not occur. No decomposition if stored and applied as directed.



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- 10.4. Conditions to avoid** : To avoid thermal decomposition, do not overheat. Under severe dusting conditions, this material may form explosive mixtures in air.
- 10.5. Incompatible materials** : No materials to be especially mentioned.
- 10.6. Hazardous decomposition products** : No materials to be especially mentioned.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity

LD50 / rat : > 5,000 mg/kg
Method: OECD Test Guideline 425
(Data on the product itself) Information source: Internal study report

Acute inhalation toxicity

- Diflufenican
LC50 / 4 h rat : > 5.12 mg/l
Dust
- Flupyr-sulfuron-methyl-sodium
LC50 / 4 h rat : > 5.8 mg/l

Acute dermal toxicity

LD50 / rabbit : > 5,000 mg/kg
Method: OECD Test Guideline 402
(Data on the product itself) Information source: Internal study report

Skin irritation

rabbit
Result: No skin irritation
Method: OECD Test Guideline 404
(Data on the product itself) Information source: Internal study report

Eye irritation

rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
(Data on the product itself) Information source: Internal study report

Sensitisation

guinea pig Maximisation Test (GPMT)
Result: Animal test did not cause sensitization by skin contact.
Method: OECD Test Guideline 406
(Data on the product itself) Information source: Internal study report

Repeated dose toxicity



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- Flupyr-sulfuron-methyl-sodium
Oral rat
Exposure time: 90 d
NOAEL: 2,000 mg/kg
Organ weight changes, Liver effects, Reduced body weight gain

Mutagenicity assessment

- Flupyr-sulfuron-methyl-sodium
Animal testing did not show any mutagenic effects. Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity assessment

- Flupyr-sulfuron-methyl-sodium
Possible human carcinogen

Toxicity to reproduction assessment

- Flupyr-sulfuron-methyl-sodium
No toxicity to reproduction

Assessment teratogenicity

- Flupyr-sulfuron-methyl-sodium
No toxicity to reproduction

STOT - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

The mixture does not have properties associated with aspiration hazard potential.

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish

flow-through test / LC50 / 96 h / *Oncorhynchus mykiss* (rainbow trout): > 1.1 mg/l
Method: OECD Test Guideline 203
(Data on the product itself) Information source: Internal study report

Toxicity to aquatic plants

ErC50 / 72 h / *Pseudokirchneriella subcapitata* (green algae): 0.00175 mg/l
Method: OECD Test Guideline 201
(Data on the product itself) Information source: Internal study report



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ErC50 / 14 d / Lemna gibba (duckweed): 0.00987 mg/l
Method: US EPA Test Guideline OPP 122-2 & 123-2
(Data on the product itself) Information source: Internal study report

Toxicity to aquatic invertebrates

Static renewal test / EC50 / 48 h / Daphnia magna (Water flea): 0.68 mg/l
Method: OECD Test Guideline 202
(Data on the product itself) Information source: Internal study report

static test / EC50 / 48 h / Daphnia magna (Water flea): > 8.4 mg/l
Method: OECD Test Guideline 202
Information source: Internal study report

static test / EC50 / 48 h / Daphnia magna (Water flea): > 8.4 mg/l
Method: OECD Test Guideline 202
Information source: Internal study report

Chronic toxicity to fish

- Flupyr-sulfuron-methyl-sodium
Early Life-Stage / NOEC / 90 d / Oncorhynchus mykiss (rainbow trout): 57 mg/l

Chronic toxicity to aquatic Invertebrates

- Flupyr-sulfuron-methyl-sodium
NOEC / 21 d / Daphnia magna (Water flea): 16 mg/l

12.2. Persistence and degradability

Biodegradability

Not readily biodegradable. Estimation based on data obtained on active ingredient.

- Diflufenican
/ 28 d
Biodegradation: 5.2 %
Method: OECD Test Guideline 301D
Not biodegradable.
- Flupyr-sulfuron-methyl-sodium
According to the results of tests of biodegradability this product is not readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulation

Does not bioaccumulate. Estimation based on data obtained on active ingredient.

12.4. Mobility in soil

Mobility in soil

Potentially mobile, but the leaching potential is mitigated by rapid degradation.
Under actual use conditions the product has a low potential of mobility in soil.



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12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). / This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

Additional ecological information

No other ecological effects to be specially mentioned. See product label for additional application instructions relating to environmental precautions.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Product : In accordance with local and national regulations. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Do not contaminate ponds, waterways or ditches with chemical or used container.
- Contaminated packaging : Do not re-use empty containers.

SECTION 14: Transport information

ADR

- 14.1. UN number: 3077
14.2. UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Diflufenican, flupyrsulfuron-methyl-sodium)
14.3. Transport hazard class(es): 9
14.4. Packing group: III
14.5. Environmental hazards: For further information see Section 12.
14.6. Special precautions for user:
Tunnel restriction code: (E)

IATA_C

- 14.1. UN number: 3077
14.2. UN proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Diflufenican, flupyrsulfuron-methyl-sodium)
14.3. Transport hazard class(es): 9
14.4. Packing group: III
14.5. Environmental hazards : For further information see Section 12.
14.6. Special precautions for user:
DuPont internal recommendations and transport guidance: ICAO / IATA cargo aircraft only

IMDG

- 14.1. UN number: 3077
14.2. UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Diflufenican, flupyrsulfuron-methyl-sodium)
14.3. Transport hazard class(es): 9
14.4. Packing group: III
14.5. Environmental hazards : Marine pollutant
14.6. Special precautions for user:
no data available



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14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Other regulations : The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008. Take note of Dir 94/33/EC on the protection of young people at work. Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. Take note of Directive 96/82/EC on the control of major-accident hazards involving dangerous substances. Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values.

15.2. Chemical Safety Assessment

A Chemical Safety Assessment is not required for this/these products
The mixture is registered as a plant protection product under Regulation (EC) No. 1107/2009.
Refer to the label for exposure assessment information.

SECTION 16: Other information

Text of R-phrases mentioned in Section 3

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of H-Statements referred to under section 3.

H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

Other information professional use

Abbreviations and acronyms

ADR European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE Acute toxicity estimate
CAS-No. Chemical Abstracts Service number
CLP Classification, Labelling and Packaging
EbC50 Concentration at which 50% reduction of biomass is observed
EC50 Median effective concentration
EN European Norm
EPA Environmental Protection Agency
ErC50 Concentration at which a 50% inhibition of growth rate is observed
EyC50 Concentration at which 50 % inhibition of yield is observed
IATA_C International Air Transport Association (Cargo)
IBC International Bulk Chemical Code
ICAO International Civil Aviation Organization



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ISO	International Standard Organization
IMDG	International Maritime Dangerous Goods
LC50	Median Lethal Concentration
LD50	Median Lethal Dose
LOEC	Lowest Observed Effect Concentration
LOEL	Lowest observable effect level
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
n.o.s.	Not Otherwise Specified
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No observed adverse effect level
NOEC	No Observed Effect Concentration
NOEL	No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
OPPTS	Office of Prevention, Pesticides and Toxic Substances
PBT	Persistent, Bioaccumulative and Toxic
STEL	Short term exposure limit
TWA	time weighted average
vPvB	very Persistent and very Bioaccumulative

Further information

Take notice of the directions of use on the label., Before use read DuPont's safety information.
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Significant change from previous version is denoted with a double bar.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.