SAFETY DATA SHEET

FLAIL 2

Compilation date: 27/09/2013

Revision date: 03/08/2015

Revision No: 2

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

1.1. Product identifier

Product name: FLAIL 2

Product code: 10266

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

Use of substance / mixture: Can be used as herbicide only.

1.3. Details of the supplier of the safety data sheet

Company name: Headland Agrochemicals
Rectors Lane
Pentre
Flintshire
CH5 2DH
United Kingdom

Tel: +44(0)1244 537370

Fax: +44(0)1244 532097

Email: enquiry@headlandgroup.com

1.4. Emergency telephone number

Emergency tel: +44(0)1244 537370
(office hours only)

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: * Flam. Liq. 3: H226; Asp. Tox. 1: H304; Skin Irrit. 2: H315; Skin Sens. 1B: H317; Eye Irrit. 2: H319; STOT SE 3: H335; Aquatic Chronic 2: H411; STOT SE 3: H336; -: EUH401

Most important adverse effects: Flammable liquid and vapour. May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness. Toxic to aquatic life with long lasting effects. To avoid risks to human health and the environment, comply with the instructions for use.

2.2. Label elements

Label elements:

Hazard statements: * H226: Flammable liquid and vapour.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.

[cont...]

H317: May cause an allergic skin reaction.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

H336: May cause drowsiness or dizziness.

H411: Toxic to aquatic life with long lasting effects.

EUH401: To avoid risks to human health and the environment, comply with the instructions for use.

Signal words: * Danger

Hazard pictograms: * GHS02: Flame

GHS07: Exclamation mark

GHS08: Health hazard

GHS09: Environmental

Precautionary statements: * P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261: Avoid breathing dust/fumes/gas/mist/vapours/spray.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to hazardous or special waste collection point.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients:

HYDROCARBONS, C9, AROMATICS - REACH registered number(s): 01-2119455851-35-XXXX

EINECS	CAS	PBT / WEL	CLP Classification	Percent
918-668-5	-	-	Flam. Liq. 3: H226; Asp. Tox. 1: H304; STOT SE 3: H335; Aquatic Chronic 2: H411; STOT SE 3: H336; -: EUH066	30-50%

[cont...]

TRICLOPYR-2-BUTOXYETHYL ESTER

265-024-8	64700-56-7	-	Acute Tox. 4: H302; Skin Sens. 1B: H317; Aquatic Acute 1: H400; Aquatic Chronic 1: H410	30-50%

CLOPYRALID (ISO)

216-935-4	1702-17-6	-	Eye Dam. 1: H318	1-10%

N,N-DIMETHYLOCTANAMIDE

214-272-5	1118-92-9	-	Skin Irrit. 2: H315; Eye Dam. 1: H318	1-10%

HYDROCARBONS, C10-C13, AROMATICS, <1% NAPTHALENE - REACH registered number(s): 01-2119451097-39-XXXX

922-153-0	64742-94-5	-	Asp. Tox. 1: H304; Aquatic Chronic 3: H412; -: EUH066	1-10%

BENZENESULFONIC ACID, MONO-C11-13-BRANCHED ALKYL DERIVS., CALCIUM SALTS - REACH registered number(s): 01-2119964467-24-XXXX

273-234-6	68953-96-8	-	Acute Tox. 4: H312; Skin Irrit. 2: H315; Eye Dam. 1: H318; Aquatic Chronic 2: H411	1-10%

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Wash immediately with plenty of soap and water. Consult a doctor.

Eye contact: Bathe the eye with running water for 15 minutes. Remove contact lenses, if present, after the first few minutes, then continue rinsing. Consult a doctor.

Ingestion: Transfer to hospital as soon as possible. Do not induce vomiting. Do not give any liquid to the person.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If experiencing respiratory symptoms, call a doctor or poison centre. If breathing has stopped, immediately start artificial respiration and maintain until a physician takes charge of the exposed person. Use a bag valve mask or similar device to perform artificial respiration if needed.

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

Skin contact: There may be irritation and redness at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: * Symptoms will only occur if large quantities are ingested. The product presents an aspiration pneumonia hazard.

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest. Drowsiness or mental confusion may occur.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

[cont...]

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

Immediate / special treatment: * Immediate medical attention is required in case of ingestion. Show this safety data sheet to the doctor in attendance. There is no specific antidote against this substance. Gastric lavage and/or administration of activated charcoal can be considered. After decontamination, treatment should be directed at the control of symptoms and the clinical condition. If lavage is performed, endotracheal and/or esophageal control suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Decision on whether to induce vomiting should be made by a physician. Maintain adequate ventilation and oxygenation of the patient.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Water spray. Dry chemical powder. Carbon dioxide. Alcohol resistant foam. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: * In combustion emits toxic fumes of carbon dioxide / carbon monoxide. Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapour may travel considerable distance to source of ignition and flash back.

5.3. Advice for fire-fighters

Advice for fire-fighters: Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water run off. Contaminated fire extinguishing water should not be discharged into drains, if preventable. If there is accidental release into water courses, drains, soil or vegetation, immediately contact the relevant authorities. Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: * Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Eliminate all sources of ignition. Avoid and reduce mist and vapour formation as much as possible. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Turn leaking containers leak-side up to prevent the escape of liquid. If outside do not approach from downwind. If outside keep bystanders upwind and away from danger point. In the case of large spills, (1 ton or more) alert the appropriate authorities.

6.2. Environmental precautions

Environmental precautions: * Do not discharge into drains or rivers. Contain the spillage using bunding. Accidental release into water courses must be alerted to the appropriate regulatory body.

[cont...]

6.3. Methods and material for containment and cleaning up

Clean-up procedures: * Surface water drains within close vicinity of the spill should be covered. Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method. For large spills which cannot be cleaned with absorbant material, contact Dow AgroSciences for assistance. Dike the spillage area and pump off product into suitable containers with explosion-proof equipment. Use foam to smother and suppress, if available. Refer to section 13 of SDS for suitable method of disposal.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS. Refer to section 13 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: * Avoid direct contact with the substance. Avoid the formation or spread of mists in the air. Ensure there is exhaust ventilation of the area. Keep away from sources of ignition and protect from exposure to fire and heat. Use non-sparking tools. Do not eat, drink or smoke in work areas. Use personal protective equipment to avoid contact with with skin, eyes and personal clothing. Avoid breathing spray. Keep out of reach of children. Wash hands after use. Remove contaminated clothing immediately after handling, then wash thoroughly and put on clean clothes. Collect all wash water and dispose of as hazardous waste. For its use as a pesticide, look for precautions and personal protective measures on the officially approved label or other official guidance or policy in force. If these are lacking, see section 8 of this SDS.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: * Store in a cool, well ventilated area. Avoid contact with water or humidity. Keep container tightly closed. Keep out of the reach of children. Keep away from food, drink and animal feedstuffs. Prevent the build up of electrostatic charge in the immediate area. Ensure lighting and electrical equipment are not a source of ignition. Keep away from sources of ignition. Keep away from direct sunlight. Do not store near direct sources of heat. Avoid temperatures above 40°C.

Suitable packaging: Must only be kept in original packaging.

7.3. Specific end use(s)

Specific end use(s): This product is a registered pesticide, which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

[cont...]

DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Respiratory protection: Respiratory protective device with particle filter. Gas/vapour filter, type A: organic vapours (EN141). Filter apparatus, combination filter A-P2.

Hand protection: Wear chemical resistant gloves (EN374). Preferred materials are polyethylene, EVAL, styrene/butadiene and viton. Acceptable materials include butyl rubber, chlorinated polyethylene, latex, neoprene, nitrile and PVC. For frequent or prolonged contact, a protection class of 5 or higher is recommended. A protection class of 3 or higher is recommended where only brief contact is expected.

Eye protection: Tightly fitting safety goggles. Wear goggles conforming to EN166 (Field of Use 5 or equivalent). Ensure eye bath is to hand.

Skin protection: Impermeable protective clothing.

Environmental: Refer to specific Member State legislation for requirements under Community environmental legislation.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Yellow

Odour: Aromatic

Solubility in water: Emulsifiable in water

Flash point°C: 55.1

Part.coeff. n-octanol/water: See section 12.3

Relative density: 1.032

pH: 2.04

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: * Decomposition may occur on exposure to conditions or materials listed below. Decomposition gases can cause a pressure build-up in closed systems. Pressure build-up can be rapid.

[cont...]

10.4. Conditions to avoid

Conditions to avoid: Heat. Hot surfaces. Flames. Direct sunlight.

10.5. Incompatible materials

Materials to avoid: Strong acids. Strong bases. Strong oxidising agents.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes. See subsection 5.2.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
DERMAL	RAT	LD50	>5000	mg/kg
ORAL	RAT	LD50	3129	mg/kg

Hazardous ingredients:

HYDROCARBONS, C9, AROMATICS

DERMAL	RABBIT	LD50	>3160	mg/kg
INHALATION	RAT	4H LC50	>6.19	mg/l
ORAL	RAT	LD50	3492	mg/kg

TRICLOPYR-2-BUTOXYETHYL ESTER

DUST/MIST	RAT	4H LC50	>4.8	mg/l

CLOPYRALID (ISO)

INHALATION	RAT	4H LC50	>1	mg/l
IPR	RAT	LD50	900	mg/kg
ORAL	MOUSE	LD50	>5	gm/kg
ORAL	RAT	LD50	4300	mg/kg

N,N-DIMETHYLOCTANAMIDE

DERMAL	RAT	LD50	>2000	mg/kg
INHALATION	RAT	4H LC50	>3.55	mg/l
ORAL	RAT	LD50	2000	mg/kg

HYDROCARBONS, C10-C13, AROMATICS, <1% NAPTHALENE

DERMAL	RABBIT	LD50	>2000	mg/kg

[cont...]

ORAL	RAT	LD50	>5000	mg/kg
VAPOURS	RAT	4H LC50	>4.69	mg/l

BENZENESULFONIC ACID, MONO-C11-13-BRANCHED ALKYL DERIVS., CALCIUM SALTS

DERMAL	RAT	LD50	1000 - 1600	mg/kg
ORAL	RAT	LD50	>2000	mg/kg

Relevant hazards for substance:

Hazard	Route	Basis
Skin corrosion/irritation	DRM	Hazardous: calculated
Serious eye damage/irritation	OPT	Hazardous: calculated
STOT-single exposure	INH	Hazardous: calculated
Aspiration hazard	-	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: There may be irritation and redness at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: * Symptoms will only occur if large quantities are ingested. The product presents an aspiration pneumonia hazard.

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest. Drowsiness or mental confusion may occur.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

Other information: Aspiration into the lungs may occur during ingestion or vomitting, causing lung damage or even death due to chemical pneumonia.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values:

Species	Test	Value	Units
EARTHWORM (Eisenia fetida)	14d LC50	224	mg/kg
BEE (Apis mellifera)	LD50 (contact)	>413	µg/bee
BEE (Apis mellifera)	LD50 (oral)	>370	µg/bee
BOBWHITE QUAIL (Colinus virginianus)	LD50 (oral)	1156	mg/kg
DUCKWEED (Lemna gibba)	7d ErC50	61.1	mg/l
ALGAE (Raphidocelis subcapitata)	72H ErC50	16.6	mg/l
DAPHNID (Daphnia magna)	48H EC50	21.6	mg/l
RAINBOW TROUT (Oncorhynchus mykiss)	96H LC50	1.47	mg/l

[cont...]

Hazardous ingredients:

HYDROCARBONS, C9, AROMATICS

Daphnia magna	48H EL50	3.2	mg/l
RAINBOW TROUT (Oncorhynchus mykiss)	96H LL50	9.2	mg/l
Raphidocelis subcapitata	72H EbL50	2.6	mg/l
Raphidocelis subcapitata	72H ErL50	2.9	mg/l
Raphidocelis subcapitata	72H NOEL	1	mg/l

HYDROCARBONS, C10-C13, AROMATICS, <1% NAPTHALENE

Daphnia magna	48H EL50	1.1	mg/l
RAINBOW TROUT (Oncorhynchus mykiss)	96H LL50	3.6	mg/l
Raphidocelis subcapitata	72H EbC50	3.8	mg/l
Raphidocelis subcapitata	72H ErL50	7.9	mg/l
Raphidocelis subcapitata	72H NOEL	0.22	mg/l

BENZENESULFONIC ACID, MONO-C11-13-BRANCHED ALKYL DERIVS., CALCIUM SALTS

Daphnia magna	48H EC50	62	mg/l
ZEBRAFISH (Danio rerio)	96H LC50	31.6	mg/l

12.2. Persistence and degradability

Persistence and degradability: * TRICLOPYR-2-BUTOXYETHYL ESTER is expected to chemically degrade very slowly in the environment by hydrolysis. OECD 301B test showed 18% biodegredation over 28 days. CLOPYRALID is expected to biodegrade very slowly in the environment. OECD 301B test showed 5-10% biodegradation over 28 days. HYDROCARBONS, C9, AROMATICS is expected to biodegrade very slowly in the environment.

12.3. Bioaccumulative potential

Bioaccumulative potential: TRICLOPYR-2-BUTOXYETHYL ESTER: Bioconcentration potential is moderate. Bioconcentration factor (BCF) for fish is 110; Log Pow = 4.62. CLOPYRALID: Bioconcentration potential is low. BCF for fish <1; Log Pow = -2.63. HYDROCARBONS, C9, AROMATICS: Bioconcentration potential is moderate. BCF is between 100 and 3000; Log Pow = 3-5.

12.4. Mobility in soil

Mobility: TRICLOPYR-2-BUTOXYETHYL ESTER degrades rapidly in soil. Potential for mobility in soil is very high for the degradation product Triclopyr (Koc between 0 and 50). CLOPYRALID has a very high potential for mobility in soil (Koc = 4.9).

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

[cont...]

12.6. Other adverse effects

Other adverse effects: No data available.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: * Waste that cannot be reused or chemically reprocessed can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Disposal of packaging: * Triple rinse (or equivalent) and offer for recycling or reconditioning. Do not discharge cleaning water to sewer systems. Alternatively, packaging can be delivered to a licensed service for disposal of hazardous waste.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN1993

14.2. UN proper shipping name

Shipping name: FLAMMABLE LIQUID, N.O.S.
(PETROLEUM DISTILLATE; TRICLOPYR)

14.3. Transport hazard class(es)

Transport class: 3

14.4. Packing group

Packing group: III

14.5. Environmental hazards

Environmentally hazardous: Yes **Marine pollutant:** Yes

14.6. Special precautions for user

Special precautions: * ADR/RID: Special Provision 640E. Hazard ID No. 30. IMO-IMDG: EmS: F-E, S-E.

Tunnel code: D/E

Transport category: 3

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Transport in bulk: The product is not transported in bulk tankers.

Section 15: Regulatory information

[cont...]

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

Specific regulations: All ingredients in this product are covered by EU chemical legislation. Product Registration Number: MAPP 16007.

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: EUH066: Repeated exposure may cause skin dryness or cracking.

EUH401: To avoid risks to human health and the environment, comply with the instructions for use.

H226: Flammable liquid and vapour.

H302: Harmful if swallowed.

H304: May be fatal if swallowed and enters airways.

H312: Harmful in contact with skin.

H315: Causes skin irritation.

H317: May cause an allergic skin reaction.

H318: Causes serious eye damage.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

H336: May cause drowsiness or dizziness.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

H411: Toxic to aquatic life with long lasting effects.

H412: Harmful to aquatic life with long lasting effects.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.