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

1.1. Product identifier

Product form	:	Mixture
Product name	:	Firestorm
Product code	:	LC 117-118 C0245
Type of formulation	:	Suspension concentrate (SC)
Active Ingredient	:	Flufenacet + Diflufenican

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

1.2.1. Relevant identified uses

Main use category	:	Plant protection product for professional use. Agriculture.
Use of the substance/mixture	:	Herbicide.

1.2.2. Uses advised against

No additional information available.

1.3. Details of the supplier of the safety data sheet

Supplier:

Life Scientific Ltd,
Nova UCD,
Belfield Innovation Park
Dublin 4, Ireland.

Distributor:

CERTIS UK

Suite 5, 3 Riverside
Granta Park
Great Abington
Cambridgeshire CB21 6AD
United Kingdom
Tel: +44 (0)845 373 0305
Fax: +44 (0)1223 891210
Email: infocertisuk@certiseurope.com
Website: www.certiseurope.co.uk

1.4. Emergency telephone number

Emergency number	:	Certis Carechem24 multilingual 24 hours emergency number: +44 (0) 870 190 6777. For advice on medical emergencies, fires, spillages or chemical hazards only –phone: 0870 190 6777. For further advice for medical professionals - The National Poisons Information Service: Tel: 0870 600 6266 (UK only) or Dublin Tel: 0035 3 137 99 64/379966. For further advice for veterinary surgeons: 020 7635 9195.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral)	H302
STOT RE 2	H373
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Full text of hazard classes and H-statements : see section 16.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms :

GHS07 GHS08 GHS09

Signal word : Warning

Contains : Flufenacet, Diflufenican

Hazard statements : H302 - Harmful if swallowed.
H373 - May cause damage to organs (nervous system) through prolonged or repeated exposure if swallowed.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements : P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P308+P311 - IF exposed or concerned: Call a POISON CENTER or doctor.
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.

EUH-statements : EUH401 - To avoid risks to human health and the environment, comply with the instructions for use.
EUH208 - Contains Flufenacet(142459-58-3). May produce an allergic reaction.

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 and very bioaccumulative (vPvB).

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable.

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Flufenacet	(CAS No) 142459-58-3 (EC No) 604-290-5	33,6	Acute Tox. 4 (Oral), H302 Skin Sens. 1, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Diflufenican	(CAS No) 83164-33-4 (EC no) 617-446-2	8,4	Aquatic Chronic 3, H412
Glycerin	(CAS No) 56-81-5 (EC no) 200-289-5	> 1,0	Not classified.

Full text of H-statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : In the event of any complaints or symptoms, avoid further exposure.

First-aid measures after inhalation : IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist call a doctor.

First-aid measures after skin contact : IF ON SKIN: Wash with plenty of soap and water, if available with polyethylene glycol 400.
Remove contaminated clothing and shoes.
If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for at least 15 minutes, also under eyelides. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist.

First-aid measures after ingestion : IF SWALLOWED: Immediately call a POISON CENTER or doctor. Never give anything by mouth to an unconscious person.
Induce vomiting only, if:

1. Patient is fully conscious,
2. Medical aid is not readily available,
3. A significant amount (more than a mouthful) has been ingested,
4. Time since ingestion is less than 1 hour.

Vomit should not get into the respiratory tract.

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

The absorption of this product into the body may lead to the formation of methaemoglobin that, in sufficient concentration, causes cyanosis.

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

The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

Treat symptomatically. In case of ingestion gastric lavage should be considered in cases of significant ingestions only withi n the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. In case of methaemoglobinemia, oxygen and specific antidotes (methylene blue/ toluidine blue) should be given.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray

Dry chemical powder

Alcohol resistant foam

Carbon dioxide (CO_2).

Unsuitable extinguishing media : A solid water stream as it may cause the fire to scatter or spread.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Combustion or thermal decomposition may generate toxic vapours: Hydrogen cyanide (hydrocyanic acid), Hydrogen fluoride, Carbon monoxide (CO), Nitrogen oxides (NOx), Sulphur oxides.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire.

Fight fire from safe distance and protected location.

Do not breathe fumes

Cool closed containers exposed to fire with water spray

If possible, take the containers out of dangerous zone.

Contain fire-fighting water with dikes or absorbents to prevent migration and entry into sewers, streams or groundwater.

Protection during firefighting : Wear suitable protective clothing, gloves, eye/face protection and respiratory protection

Wear a self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Protective equipment : Wear suitable protective clothing, gloves and eye/ face protection.

Emergency procedures : Evacuate area.

Ensure adequate ventilation.

Avoid direct contact with the substance.

Contain any spills with dikes or absorbents to prevent migration and entry into sewers, streams or groundwater.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

Notify the authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it.

Once absorbed collect spilled material with shovels, buckets and place in closed containers and label properly.

Remove as chemical waste, according to national or local legislation.

In the event of major spillage: contact an expert.

6.4. Reference to other sections

See Section 7 for information on handling and storage. See Section 8 for information on PPE . See section 13 on information regarding waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Read label before use.

Avoid contact with eyes, skin, nose and mouth.

Wear suitable protective clothing, gloves and eye/face protection.

Opened containers must be carefuly closed and kept upright to avoid leakage.

Hygiene measures : Always wash your hands immediately after handling this product, and once again before leaving the workplace.

Contaminated work clothing should not be allowed out of the workplace.

Do not eat, drink or smoke when using this product.

Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Provide adequate ventilation.

Storage conditions : Prevent unauthorised access.

Keep locked up and out of the reach of children.

Keep in original containers, tightly closed.

Keep away from food, drink and animal feedingstuffs.

Protect against frost.

Keep away from heat and direct sunlight.

Packaging materials : HDPE containers.

7.3. Specific end use(s)

Herbicide for agricultural use. Refer to the label.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Value Type	Exposure Limit	Source
TWA (Flufenacet)	0,47 mg/m^3	Supplier
TWA (Diflufenican)	5,5 mg/m^3	Supplier
TWA (Glycerin)	10 mg/m^3	UKEH440 Workplace exposure limit

8.2. Exposure controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection : Wear impervious gloves resistant to chemical. Nitrile rubber. (minimum thickness of 0,4 mm)

Eye protection : Safety goggles or a face shield. (conforming to EN166, Field of Use = 5 or equivalent)

Skin and body protection : Wear standard coveralls and Category 3 Type 4 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 there is a risk of significant exposure, consider a higher protective type suit.

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.
Hygiene measures	:	Remove and wash contaminated clothing before re-use. Do not eat, drink or smoke while handling the product. Clean gloves with soap and water before removing. Wash hands and face with soap and water before eating, drinking smoking and immediately after handling product. Clean equipment, premises and work clothes regularly. Work clothing should remain on the work area and stored separately from street clothes.
Environmental exposure controls	:	Discharge into the environment must be avoided. Do not contaminate surface and groundwater.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appereance	:	Suspension
Colour	:	White to Beige
Odour	:	Weak, characteristic
Odour threshold	:	No data available
pH (at 100%, 23°C)	:	4,0 – 6,5
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	> 100 °C
Flash point	:	No flash point
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Density	:	1,19 g/cm³ at 20°C
Solubility in water	:	Dispersible
Log P octanol/water at 20°C	:	Flufenacet log Pow: 3,2 Diflufenican: log Pow: 4,2
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is stable at normal handling and storage conditions.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization does not occur.

Is not explosive and does not exhibit oxidant properties.

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Combustion or thermal decomposition may generate toxic vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

Firestorm (similar formulation)	
LD50 oral rat	500 - 2000 mg/kg
LD50 dermal rat	> 4000 mg/kg
LC50 inhalation rat	> 2,078 mg/l/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Development toxicity : Flufenacet caused developmental toxicity only at dose levels toxic to the dams (related to maternal toxicity)

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Firestorm	
LC50 Fishes (*Cyprinus carpio*)	54,9 mg/l (96h)
EC50 Daphnia	68,2 mg/l (48h)
EC50 (*Pseudokirchneriella subcapitata*)	0,00885 mg/l

12.2. Persistence and degradability

Flufenacet	
Degradability	Not readily biodegradable.
Persistance	Not persistance in soil

Diflufenican	
Degradability	Not readily biodegradable.
Persistance	Moderate to highly persistance in soil

12.3. Bioaccumulative potential

Flufenacet	
BCF	71 => Does not bioaccumulate.

Diflufenican	
BCF	1,596 => Does not bioaccumulate.

12.4. Mobility in soil

Flufenacet: Moderately mobile in soils (Koc: 202)

Diflufenican: Slightly mobile in soils (Koc: 3417)

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Dispose according to local regulations.

SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

UN-No. : 3082

UN-No.(IATA) : 3082

14.2. UN proper shipping name

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Flufenacet + Diflufenican)

Transport document description : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Flufenacet + Diflufenican), 9, III, (E)

14.3. Transport hazard class(es)

Class (UN) : 9

Class (IATA) : 9 - Miscellaneous dangerous goods.

Hazard labels (UN) : 9

14.4. Packing group

Packing group (UN) : III

14.5. Environmental hazards

Dangerous for the environment :

Marine pollutant

Other information : No supplementary information available.

14.6. Special precautions for user

14.6.1. Overland transport

Hazard identification number (Kemler No.) : 90

Classification code (UN) : M6

Orange plates :

14.6.2. Transport by sea

EmS-No. (1) : F-A

EmS-No. (2) : S-F

14.6.3. Air transport

No additional information available

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Source of information : Safety Data Sheet of Firestorm. Life Scientific. Date 26.07.2016. Version: 1.0.

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Skin Sens. 1	Sensitisation — Skin, Category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H302	Harmful if swallowed
H317	May cause an allergic skin reaction
H373	May cause damage to organs (nervous system) through prolonged or repeated exposure if swallowed.

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
EUH208	Contains . May produce an allergic reaction
EUH401	To avoid risks to human health and the environment, comply with the instructions for use