



SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Thrust

Version 1 (Ireland)

Issuing date: 2014/05/07

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name : **Thrust**

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

Use : Herbicide

1.3. Details of the supplier of the safety data sheet

Nufarm UK Limited
Wyke Lane
Wyke
Bradford
West Yorkshire BD12 9EJ
United Kingdom
Telephone: +44 (0)1274 691234
Telefax: +44 (0)1274 691176
E-mail address: infouk@uk.nufarm.com

1.4. Emergency telephone number

+44 (0)1274 696603

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

EEC/99/45 :	Xn	R22 - Harmful if swallowed.
	Xi	R37 - Irritating to respiratory system.
	Xi	R41 - Risk of serious damage to eyes.
	Xi	R43 - May cause sensitization by skin contact.
	N	R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
EG_1272/08 :	AcuteTox.4	H302 - Harmful if swallowed.
	EyeDam.1	H318 - Causes serious eye damage.
	SkinSens.1	H317 - May cause an allergic skin reaction.
:	AquaticChronic2	H411 - Toxic to aquatic life with long lasting effects.

2.2. Label elements

according directive 1999/45/EG

Pictogram:



Xn



N

- | | |
|--------|---|
| R22 | - Harmful if swallowed. |
| R37 | - Irritating to respiratory system. |
| R41 | - Risk of serious damage to eyes. |
| R43 | - May cause sensitization by skin contact. |
| R51/53 | - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
| S 2 | - Keep out of the reach of children. |
| S13 | - Keep away from food, drink and animal feedingstuffs. |
| S46 | - If swallowed, seek medical advice immediately and show this container or label. |
| S23 | - Do not breathe spray. |
| S24 | - Avoid contact with skin. |
| S26 | - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. |
| S35 | - This material and its container must be disposed of in a safe way. |
| S37/39 | - Wear suitable gloves and eye/face protection. |
| S57 | - Use appropriate container to avoid environmental contamination. |

REGULATION (EC) No 1272/2008

Pictogram:



GHS05



GHS07



GHS09

Signal word: Danger

- | | |
|--------------------------|--|
| H302 | - Harmful if swallowed. |
| H318 | - Causes serious eye damage. |
| H317 | - May cause an allergic skin reaction. |
| 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. |
| P305 +
P351 +
P338 | - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P301 +
P312 | - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. |



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- P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
- P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention.
- P310 - Immediately call a POISON CENTER or doctor/ physician.
- P273 - Avoid release to the environment.
- 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).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Aqueous solution of dimethylammonium salts
Contains 344 g/L 2,4-D and 120 g/L Dicamba

3.2. Mixtures

Components:

2,4-D DMA

CAS-No.: 2008-39-1
EINECS-No. / ELINCS No.: 217-915-8
REACH No.:
Concentration: 35.7 % (w/w)

Classification:

EG_1272/08 : AcuteTox.4 H302 - Harmful if swallowed.
EyeDam.1 H318 - Causes serious eye damage.
SkinSens.1 H317 - May cause an allergic skin reaction.
AquaticChronic2 H411 - Toxic to aquatic life with long lasting effects.
EEC/67/548 : Xi R41 - Risk of serious damage to eyes.
Xn R22 - Harmful if swallowed.
N R43 - May cause sensitization by skin contact.
R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Dicamba DMA

CAS-No.: 2300-66-5
EINECS-No. / ELINCS No.: 218-951-7
REACH No.:
Concentration: 12.4 % (w/w)

Classification:

EG_1272/08 : EyeIrrit.2 H319 - Causes serious eye irritation.
AquaticChronic3 H412 - Harmful to aquatic life with long lasting effects.
EEC/67/548 : Xi R36 - Irritating to eyes.
R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.



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2,4-Dichlorophenol

CAS-No.: 120-83-2
EINECS-No. / ELINCS No.: 204-429-6
REACH No.: 01-2119513326-47
Concentration: 0.1 % (w/w)

Classification:

EG_1272/08 :	AcuteTox.3	H311 - Toxic in contact with skin.
	AcuteTox.4	H302 - Harmful if swallowed.
	SkinCorr.1B	H314 - Causes severe skin burns and eye damage.
	AquaticChronic2	H411 - Toxic to aquatic life with long lasting effects.
EEC/67/548 :	T	R24 - Toxic in contact with skin.
	Xn	R22 - Harmful if swallowed.
	C	R34 - Causes burns.
	N	R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

4.1. Description of first aid measures

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.

Skin contact : Take off all contaminated clothing immediately. Wash off immediately with soap and plenty of water. If symptoms persist, call a physician. Wash contaminated clothing before re-use.

Inhalation : Move to fresh air. If symptoms persist, call a physician.

Ingestion : Do NOT induce vomiting. Rinse mouth. If conscious, drink plenty of water. If symptoms persist, call a physician.

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

Symptoms : Sweating, headache, Weakness, Diarrhoea, anorexia, nausea, Salivation, stomach pains, blurred vision, muscle twitching, Convulsions, Loss of reflexes, heart and circulatory collapse, Coma

Hazards : No information available.

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

Treatment : Treat symptomatically.



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5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media : Water spray, Carbon dioxide (CO₂), Dry powder, Alcohol-resistant foam

Extinguishing media which shall not be used for safety reasons : High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting : In the event of fire (HCl, Cl₂, CO) may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters : Use personal protective equipment. Wear self contained breathing apparatus for fire fighting if necessary.

Further Information : Standard procedure for chemical fires. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment. (see Chapter 8)

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. 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). Sweep up and shovel into suitable containers for disposal.

Additional advice : Never return spills in original containers for re-use.

6.4. Reference to other sections

see Chapter 13



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7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling advice : Wear personal protective equipment. Keep out of reach of children.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in original container. Keep containers tightly closed in a cool, well-ventilated place.

Advice on common storage : Keep out of reach of children. Keep away from food, drink and animal feeding stuffs.

Storage stability

Storage temperature : > 0 °C

7.3. Specific end use(s)

none

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Components with workplace control parameters
(according to S.I. No. 619 of 2001)

Components	CAS-No.	National occupational exposure limits	Note
2,4-D DMA	2008-39-1		no classification available, (according to S.I. No. 619 of 2001)
Dicamba DMA	2300-66-5		no classification available, (according to S.I. No. 619 of 2001)
2,4-Dichlorophenol	120-83-2		no classification available, (according to S.I. No. 619 of 2001)

8.2. Exposure controls

Personal protective equipment

Respiratory protection : Suitable respiratory protection for higher concentrations or long-term effect: Combination filter for gases/vapours of organic, inorganic, acid inorganic and alkaline compounds (e.g. EN 14387 Type ABEK).



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| Hand protection | : Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) and other |
| Eye protection | : Safety glasses with side-shields (frame goggles) (e.g. EN 166) |
| Skin and body protection | : Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust). |
| Hygiene measures | : Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke. |
| Protective measures | : The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs. |

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance

- | | |
|----------------|-----------------------|
| Physical state | : liquid at 20 °C , |
| Form | : Soluble concentrate |
| Colour | : brown |
| Odour | : amine-like |

- | | |
|--------------------------|-------------------------------|
| Start of crystallisation | : ca.0 °C
Aqueous solution |
|--------------------------|-------------------------------|

- | | |
|-----------------------------|---|
| Boiling point/boiling range | : ca.100 °C
at 1,013 hPa
Aqueous solution |
|-----------------------------|---|

- | | |
|-------------|------------|
| Flash point | : > 103 °C |
|-------------|------------|

- | | |
|----------------------|------------|
| Ignition temperature | : > 424 °C |
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- | | |
|-------------|-----------------|
| Explosivity | : Not explosive |
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Upper explosion limit	: no data available
Lower explosion limit	: no data available
Vapour pressure	: Active ingredients are organic salts. Vapour pressure is negligibly low.
Density	: 1.16 g/cm ³ at 20 °C
Water solubility	: completely miscible
Water solubility	: completely miscible
pH	: 8 - 10 6 - 9 at 10 g/l
Partition coefficient: n-octanol/water	: no data available
Dissociation constant	: no data available
Viscosity, dynamic	: 10.6 mPa.s at 20 °C

9.2. Other information

none

10. STABILITY AND REACTIVITY

10.1. Reactivity

no data available

10.2. Chemical stability

No decomposition if stored and applied as directed.

10.3. Possibility of hazardous reactions



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No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

No decomposition if stored and applied as directed.

10.5. Incompatible materials to avoid

Strong acids and strong bases

10.6. Hazardous decomposition products

no data available

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute oral toxicity : LD50 rat
Dose: 1,127 mg/kg

Acute dermal toxicity : LD50 rat
Dose: > 2,000 mg/kg

Skin irritation : rabbit
Result: Mild skin irritation

Eye irritation : rabbit
Classification: Risk of serious damage to eyes.
Result: Severe eye irritation

Sensitisation : mouse
Result: May cause sensitization by skin contact.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Toxicity to birds : Practically non toxic.



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- Toxicity to bees : LD50 (oral) *Apis mellifera* (Honey bee)
Testing period: 24 h
Dose ($\mu\text{g}/\text{Species}$): > 100
- : LD50 (oral) *Apis mellifera* (Honey bee)
Testing period: 48 d
Dose ($\mu\text{g}/\text{Species}$): > 100
- : LD50 (oral) *Apis mellifera* (Honey bee)
Testing period: 72 h
Dose ($\mu\text{g}/\text{Species}$): 95.91
- : LD50 (contact) *Apis mellifera* (Honey bee)
Testing period: 96 h
Dose ($\mu\text{g}/\text{Species}$): > 200
- Toxicity to earthworms : LC50 *Eisenia fetida* (earthworms)
Dose: > 1,000 ppm
Testing period: 14 d
- Toxicity to fish : LC50 *Oncorhynchus mykiss* (rainbow trout)
Dose: > 1,000 mg/l
Testing period: 96 h
- LC50 *Cyprinus carpio* (Common carp)
Dose: > 1,000 mg/l
Testing period: 96 h
- NOEC *Pimephales promelas* (Fathead Minnow)
Dose: 63.4 mg/l
Testing period: 32 d
Test substance: (2,4-D)
- semi-static test NOEC *Oncorhynchus mykiss* (Rainbow trout)
Dose: 180 mg/l
Testing period: 21 d
Test substance: (Dicamba)
- Toxicity to daphnia : EC50 *Daphnia magna* (Water flea)
Dose: > 1,000 mg/l
Testing period: 48 h
- semi-static test NOEC *Daphnia magna* (Water flea)
Dose: 97 mg/l
Testing period: 21 d
Test substance: (Dicamba)



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NOEC Daphnia magna (Water flea)

Dose: 46.2 mg/l

Testing period: 21 d

Test substance: (2,4-D)

Toxicity to algae : LC50 Desmodesmus subspicatus (green algae)
Dose: 204.6 mg/l
Exposure time: 72 h

EC50 Lemna gibba (Duckweed)

Dose: 7.378 mg/l

Exposure time: 7 d

NOEC Lemna gibba (Duckweed)

Dose: 0.32 mg/l

Exposure time: 7 d

12.2. Persistence and degradability

Biodegradability : no data available

Stability in soil : DT50: 2.1 - 8 d
(Dicamba)

DT50: 2 - 59 d
(2,4-D)

Stability in water : DT50: 13 d
(2,4-D)

DT50: 14 - 40 d
(Dicamba)

12.3. Potential bioaccumulation

Bioaccumulation : Does not bioaccumulate.

12.4. Mobility in soil

Koc= 5 - 212 (2,4-D)

Kfoc = 3.45 - 21.2, 1/n=0.72 - 0.93 (Dicamba)

12.5. Results of PBT and vPvB assessment

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



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12.6. Other adverse effects

none

13. DISPOSAL CONSIDERATIONS

According to European Directive 2000/532/EC as amended :

Waste Code : 02 01 08 (agrochemical waste containing dangerous substances)

13.1. Waste treatment methods

Product : Dispose of in accordance with local regulations.

Contaminated packaging : Do not re-use empty containers. Dispose empty and triple rinsed container within a local disposing system according to EC directive 94/62/EC

14. TRANSPORT INFORMATION

14.1. UN number

UN3082

14.2. Proper shipping name

UN3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.*(2,4-D)

14.3. Transport hazard class(es)

ADR/RID :
Class : 9

IMDG :
Class : 9

IATA-DGR :
Class : 9

14.4. Packaging group

ADR/RID : III



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IMDG : III

IATA-DGR : III

14.5. Environmental hazards

IMDG

Marine Pollutant : MP

14.6. Special precautions for user

none

15. REGULATORY INFORMATION

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

Other regulations : The product is classified and labelled in accordance with EC directives or respective national laws.

15.2. Chemical Safety Assessment

none

16. OTHER INFORMATION

Print Date : 2014/05/07

The date format YYYY/MM/DD is used according to ISO 8601.
(Alterations are indicated in the left hand margin by: ||)

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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

The information contained herein is based on the present state of our knowledge and does therefore not guarantee certain properties.