

SAFETY DATA SHEET

FIRESTORM

Version 2.6 Revision Date: 10/08/2015 MSDS Number: 400000001079 Country: US
Language: EN

SECTION 1. IDENTIFICATION

Product name : FIRESTORM

Product code : 400000001079

Manufacturer or supplier's details

Company: MacDermid Agricultural Solutions, Inc
245 Freight St
Waterbury, CT
United States of America
06702
Telephone : +1 800 423 8569

Prepared by sds.request@arysta.com

Further information for the safety data sheet :
sds.request@arysta.com

1.4 Emergency telephone number

Emergency telephone number: Agriphar Crop Solutions: +1 800 423 8569(24 hours) 800-424-9300
For additional emergency telephone numbers see section 16 of the
Safety Data Sheet.

Recommended use of the chemical and restrictions on use

Recommended use : Herbicide

Restrictions on use : Agriculture, For professional users only.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral) : Category 3

Acute toxicity (Inhalation) : Category 2

Acute toxicity (Dermal) : Category 3

Skin irritation : Category 2

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Eye irritation : Category 2A

Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

Acute aquatic toxicity : Category 1

Chronic aquatic toxicity : Category 1

GHS Label element

Hazard pictograms :



Signal word : Danger

Hazard statements : H301 + H311 Toxic if swallowed or in contact with skin
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.
P280 Wear protective gloves/ protective clothing.
P284 Wear respiratory protection.

Response:
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P361 Remove/ Take off immediately all contaminated clothing.
P391 Collect spillage.

Storage:

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P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture
Chemical nature : Herbicide

Hazardous components

Chemical Name	CAS-No.	Concentration (% w/w)
paraquat-dichloride	1910-42-5	44.2 <

SECTION 4. FIRST AID MEASURES

If inhaled : Call a POISON CENTER or doctor/ physician.
In case of skin contact : Remove contaminated clothing and shoes.
Call a POISON CENTER or doctor/ physician.
In case of eye contact : Call a POISON CENTER or doctor/ physician.
If swallowed : Call a physician or poison control centre immediately.
Do not induce vomiting without medical advice.
Most important symptoms and effects, both acute and delayed : irritant effects
Symptoms may be delayed.
Toxic by inhalation.
Toxic in contact with skin.
Toxic if swallowed.
Notes to physician : The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Extinguishing media - large fires
Alcohol-resistant foam
(on small fires)
Carbon dioxide (CO₂)

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Dry chemical

Unsuitable extinguishing media : Water spray jet

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Further information : Do not discharge extinguishing waters into streams, rivers and lakes.

Special protective equipment for firefighters : Body covering protective clothing, full "turn-out" gear.
Self-contained breathing apparatus (EN 133)

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Evacuate unnecessary personnel.
Avoid all contact with material.
Wear suitable protective equipment.

Environmental precautions : Prevent leaks and prevent soil / water pollution caused by leaks.

Methods and materials for containment and cleaning up : Absorb on inert material such as sand, earth, vermiculite.
Collect for disposal.
Dam up.
Large spills should be collected mechanically (remove by pumping) for disposal.
Pump excess material into suitable container (metal drums, metal tank, or such).

In accordance with local and national regulations.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Wear suitable protective equipment.
Warn personnel about the dangers of the product.
Keep container tightly closed.
Keep container tightly closed.

Conditions for safe storage : Keep in a dry, cool place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
paraquat-dichloride	1910-42-5	TWA (respirable fraction)	0.5 mg/m ³	OSHA Z-1
		TWA (respirable dust frac-	0.1 mg/m ³	OSHA P0

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		tion)		
		TWA (Respirable)	0.1 mg/m3	NIOSH REL
		TWA (respirable dust)	0.5 mg/m3	OSHA Z-1

Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.
Respirator with a dust filter

Hand protection

Remarks : PVC or other plastic material gloves Rubber gloves

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

Skin and body protection : Impervious clothing

Hygiene measures : Wash thoroughly after handling.
Remove and wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : solid

Colour : dark, green

Odour : strong, pungent, unpleasant

Odour Threshold : No data available

pH : 5.0, 1 %

Melting point/range : No data available

Boiling point/boiling range : 105 °C

Flash point : Not applicable

Evaporation rate : Not applicable

Upper explosion limit : Not explosive

Lower explosion limit : Not explosive

Vapour pressure : Not applicable

Relative vapour density : Not applicable

Relative density : 1.126

Solubility(ies)

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Water solubility : completely miscible

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity

 Viscosity, dynamic : Not applicable

 Viscosity, kinematic : Not applicable

Self-Accelerating decomposition temperature (SADT) : Method: No information available.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions : Hazardous polymerisation does not occur.
Stable under normal conditions.

Conditions to avoid : Temperature < 0 °C

Hazardous decomposition products : Burning produces noxious and toxic fumes.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Product:

Acute oral toxicity : Acute toxicity estimate: 99.67 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 0.05 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 299.02 mg/kg
Method: Calculation method

Components:

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paraquat-dichloride:

- Acute oral toxicity : LD50 (Rat, female): 283 mg/kg
Assessment: The component/mixture is toxic after single ingestion.
- Acute inhalation toxicity : LC50 (Rat): 0.0006 mg/l
Exposure time: 4 h
Assessment: The component/mixture is highly toxic after short term inhalation.
- Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The component/mixture is low toxic after single contact with skin.

Skin corrosion/irritation

Components:

paraquat-dichloride:

Species: Rabbit
Assessment: slight irritation

Serious eye damage/eye irritation

Components:

paraquat-dichloride:

Species: Rabbit
Result: Moderate eye irritation
Assessment: slight irritation

Respiratory or skin sensitisation

Components:

paraquat-dichloride:

Assessment: Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity

Product:

Germ cell mutagenicity - Assessment : No data available

Carcinogenicity

Product:

Carcinogenicity - Assessment : No data available

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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OSHA No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment : No data available
No data available

STOT - single exposure

Product:

Exposure routes: Inhalation
Target Organs: Respiratory system

STOT - repeated exposure

Product:

Remarks: No data available

Further information

Product:

Remarks: The following information is applicable to a component of this material:

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

paraquat-dichloride:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill)): 13 ppm
LC50 (Oncorhynchus mykiss (rainbow trout)): 55 ppm

Toxicity to daphnia and other aquatic invertebrates : LC50 (Ceriodaphnia dubia (Water flea)): 4.0 mg/l

Persistence and degradability

No data available

Bioaccumulative potential

No data available

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Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : The following information is applicable to a component of this material:

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of as hazardous waste in compliance with local and national regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulation

UNRTDG

UN number : UN 2922
Proper shipping name : CORROSIVE LIQUID, TOXIC, N.O.S.
(Paraquat)
Class : 8
Subsidiary risk : 6.1
Packing group : III
Labels : 8 (6.1)

IATA-DGR

UN/ID No. : UN 2922
Proper shipping name : CORROSIVE LIQUID, TOXIC, N.O.S.
(Paraquat)
Class : 8
Subsidiary risk : 6.1
Packing group : III
Labels : Corrosive, Toxic
Packing instruction (cargo aircraft) : 856
Packing instruction (passenger aircraft) : 852

IMDG-Code

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UN number : UN 2922
Proper shipping name : CORROSIVE LIQUID, TOXIC, N.O.S.
(Paraquat)
Class : 8
Subsidiary risk : 6.1
Packing group : III
Labels : 8 (6.1)
EmS Code : F-A, S-B
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

49 CFR

UN/ID/NA number : UN 2922
Proper shipping name : CORROSIVE LIQUIDS, TOXIC, N.O.S.
(Paraquat)
Class : 8
Subsidiary risk : 6.1
Packing group : III
Labels : CORROSIVE, TOXIC
ERG Code : 154
Marine pollutant : yes(Paraquat)

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
paraquat-dichloride	1910-42-5	10	23

SSARA 311/312 Hazards : Acute Health Hazard

SARA 302 : The following components are subject to reporting levels established by SARA Title III, Section 302:

paraquat-dichloride 1910-42-5 44.2 %

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

paraquat-dichloride 1910-42-5 44.2 %

Clean Air Act

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This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMi Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

FIFRA Hazard Information:

This chemical is a pesticide product registered by the United States 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 (SDS), and for workplace labels of non-pesticide chemicals. The pesticide label also includes other important information, including directions for use.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

(Q)SAR - (Quantitative) Structure Activity Relationship; ASTM - American Society for the Testing of Materials; bw - Body weight; DIN - Standard of the German Institute for Standardisation; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of

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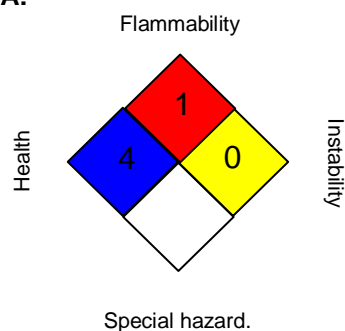
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Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; EHS - Extremely Hazardous Substance; HMIS - Hazardous Materials Identification System; MSHA - Mine Safety and Health Administration; NFPA - National Fire Protection Association; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SARA - Superfund Amendments and Reauthorization Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice; ERG - Emergency Response Guide; NTP - National Toxicology Program; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods

Further information

NFPA:



HMIS III:

HEALTH	4
FLAMMABILITY	1
PHYSICAL HAZARD	1

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 10/08/2015

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.

US / EN

Carechem24 International Worldwide Coverage

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Country: US
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Emergency Phone Number

<u>Europe:</u>	All European Countries	+44 (0) 1235 239 670 (NCEC)
<u>Asia Pacific:</u>	East / South East Asia – Regional Number	+65 3158 1074
	Australia	+61 2801 44558
	New Zealand	+64 9929 1483
	China	+86 532 8388 9090
	China Taiwan	+86 10 5100 3039
	Japan	+81 345 789 341
	Indonesia	00780 3011 0293
	Malaysia	+60 3 6207 4347
	Thailand	001800 1 2066 6751
	Korea	+65 3158 1285 +82 (0)234 798 401
	Vietnam	+65 3158 1255
	India	+65 3158 1198 0800 100 7479
	Pakistan	+65 3158 1329
	Philippines	+65 31581203
	Sri Lanka	+65 3158 1195
	Emergency Phone Number	+65 3158 1200
<u>Middle East / Africa:</u>	Arabic speaking countries	+44 (0) 1235 239 671
	South Africa	+27 21 300 2732
	All other countries	+44 (0) 1235 239 670
<u>America</u>	United States of America and Canada	+1866 928 0789 +1 215 207 0061
<u>Latin America:</u>	Brazil	+55 113 711 9144
	Mexico	+52 555 004 8763
	Chile	+56 225 829 336
	All other countries	+44 (0) 1235 239 670