Product Safety Assessment

Fluroxypyr


Select a Topic:
Names
Product Overview
Manufacture of Product
Product Description
Product Uses
Exposure Potential
Health Information
Environmental Information
Physical Hazard Information
Regulatory Information
Additional Information
References

Names
- CAS No. 69377-81-7 (acid)
- Fluroxypyr acid
- 1-Methylheptyl(4-amino-3,5-dichloro-6-fluoro-2-pyridinyl)oxy acetic acid
- 1-Methylheptyl(4-amino-3,5-dichloro-6-fluoro-2-pyridoxyl) acetate
- CAS No. 81406-37-3 (ester)
- Fluroxypyr 1-methylheptyl ester (MHE)
- Fluroxypyr-methyl
- STARANE® herbicide
- VISTA® specialty herbicide
- SPOTLIGHT® specialty herbicide

Much of the information in this document relates to the registration and sale of fluroxypyr in the United States of America. For details applicable to other geographies, consult the relevant Product Label, Safety Data Sheet or Contact Us.

Back to top

Product Overview

- Fluroxypyr is the common name for 1-methylheptyl(4-amino-3,5-dichloro-6-fluoro-2-pyridinyl)oxy acetic acid, the active ingredient in several herbicides manufactured by Dow AgroSciences (DAS), a subsidiary of The Dow Chemical Company. Fluroxypyr herbicide formulations are sold under the trade names STARANE® herbicides, VISTA® specialty herbicide and SPOTLIGHT® specialty herbicide. These products are yellow- to brown-colored liquids.¹² Fluroxypyr is a post-emergence, systemic herbicide that internally disrupts weed growth resulting in target plant death.³ For further details, see Product Description.
- Fluroxypyr is a pyridine-based herbicide used to control established broadleaf weeds and woody brush. It is registered for use on corn, wheat, barley, oats, sorghum, forage, hay, onions, fallow cropland, industrial sites, and rights-of-way, as well as home lawns and recreational sites such as golf courses, parks, and sports fields.⁴⁵⁶ For further details, see the relevant Product Label and Product Uses.
- Consumers could be exposed to fluroxypyr when using lawn-care products containing it, or following applications at golf courses, parks, or other grassy areas. Consumers could possibly be exposed to fluroxypyr residues by consumption of trace residues in food and/or drinking water.⁷ Workers could be exposed to fluroxypyr during manufacturing or formulating operations or during herbicide application in the field. For further details, see Exposure Potential.
Product Safety Assessment: Fluroxypyr

- Eye contact with concentrated herbicide formulation may result in moderate irritation with corneal injury. Brief skin contact is essentially nonirritating. Prolonged or repeated skin contact may cause irritation, drying or flaking, or even a burn. Prolonged skin contact is not likely to result in absorption of harmful amounts. No adverse effects are anticipated from a single inhalation exposure. For further details, see Health Information or the Safety Data Sheet.
- Fluroxypyr herbicide formulations are stable under normal storage and use conditions. Avoid contact with acids, bases, and oxidizers. Consult the Product Label for specific use and storage information. For further details, see Physical Hazard Information.

Manufacture of Product
- Manufacture – Dow AgroSciences manufactures fluroxypyr in Pittsburg, California and formulates products in Drusenheim, France and Midland, Michigan.
- Process – Fluroxypyr is produced using a complex and proprietary process. The structures of fluroxypyr acid and ester are shown below:

![Fluroxypyr structures](image)

Product Description
Fluroxypyr is the common name for 1-methylheptyl((4-amino-3,5-dichloro-6-fluoro-2-pyridinyl)oxy) acetic acid, the active ingredient in several herbicides manufactured by Dow AgroSciences (DAS). Fluroxypyr is normally formulated as fluroxypyr 1-methylheptyl ester (MHE) and marketed by DAS under the trade names STARANE® herbicides, VISTA® specialty herbicide and SPOTLIGHT® specialty herbicide. These products are yellow- to brown-colored liquids that are readily absorbed into the plant through the leaves. The formulated products contain 25 to 35% active ingredient, with the balance petroleum solvents and stabilizers. Once inside the plant or in the environment, the ester form of fluroxypyr is readily converted to the acid form. Fluroxypyr is a post-emergence, systemic herbicide, meaning it disrupts the internal growth processes of established weeds resulting in death of the weeds in 3 to 5 weeks following application.

Product Uses
Fluroxypyr is a pyridine-based herbicide used to control established broadleaf weeds and woody brush. It is registered by the U.S. Environmental Protection Agency (EPA) for the following applications:
- Pasture and rangeland
- Crops – sweet corn, field corn, wheat, barley, oats, millet, sorghum, onions, apple & pear orchards
- Pine plantations
- Fallow cropland
- Industrial sites
- Rights-of-way – electrical power lines, communication lines, pipelines, roadsides, railroads
- Residential lawns
- Recreational sites – golf courses, parks, sports fields

® Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
Fluroxypyr products are also registered for use on a global basis. Countries with registrations include Belgium, France, Germany, Italy, Poland, Spain, the United Kingdom and fourteen other Member States of the European Union. Registrations also authorize sales in more than 45 other countries, including Australia, Brazil, Canada, New Zealand, Russia and Ukraine.

Exposure Potential
Fluroxypyr is used in the production of commercial and residential herbicides. Based on the uses for fluroxypyr, the public could potentially be exposed through:

- **Workplace exposure** – Exposure could occur in a fluroxypyr manufacturing facility or in facilities that formulate it into herbicides. Those working with fluroxypyr in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit unnecessary exposure. Agricultural workers, roadside-maintenance workers, greens keepers, and others using this product could be exposed while applying herbicide in the field. Applicators are expected to follow label precautions, including wearing personal protective equipment that is appropriate to the application method. See Health Information and Product Label.

- **Consumer exposure to products containing fluroxypyr** – Consumers could be exposed to fluroxypyr when using lawn-care products containing it or following applications at golf courses, parks, or other grassy areas. Consumers could possibly be exposed to fluroxypyr residues by consumption of trace residues in food and/or drinking water. The U.S. Environmental Protection Agency (EPA) has performed aggregate risk assessment analyses on fluroxypyr to determine the public’s safety with respect to combined dietary and non-dietary exposures. Acute (short-term) and chronic (long-term) aggregate risk calculations were determined. The EPA has concluded with reasonable certainty that “no harm will result to the general population and to infants and children from aggregate exposure to fluroxypyr and its residues.” See Health Information.

- **Environmental releases** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil, ditches, sewers, waterways, or groundwater. Absorb small spills with a dry material such as sand, Zorball, or dirt. Wash thoroughly after handling. This description provides a general overview; please consult the relevant Safety Data Sheet or Product Label for more information about protective equipment and procedures. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill in the United States does occur, dike the area to keep the material out of sewers. Personnel engaged in clean up of spills must wear appropriate protective equipment. Consult the relevant Safety Data Sheet or Product Label for more detailed information about protective equipment and procedures.

- **In case of fire** – Wear positive-pressure, self-contained breathing apparatus (SCBA). Use foam, carbon-dioxide, or dry-chemical extinguishers to fight fire. Consult the Product Label and Safety Data Sheet for specific fire-fighting measures. A foam fire-extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic and irritating gases and fumes will be formed in fire. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

- **Emergency Response Information** – In the case of an emergency such as poisoning, product spillage or fire associated with a Dow AgroSciences product in the United States contact us at 800-992-5994 (additional information is available at http://www.dowagro.com/rc/response/na.htm). For emergencies outside the United States, access http://www.dowagro.com/re/response/index.htm for a list of country sites or contact pages for relevant information.

Back to top
Health Information

Laboratory Testing -- Before pesticides are registered by the U.S. Environmental Protection Agency (EPA), they must undergo testing for short-term (acute) and long-term (chronic) health effects. Laboratory animals are purposely fed doses high enough to cause toxic effects. These tests help scientists determine how chemicals might affect humans, domestic animals, or wildlife in cases of overexposure. Pesticide products used according to label directions are unlikely to cause toxic effects. The amount of pesticide that people and pets may be exposed to is low compared to the doses fed to laboratory animals.

Eye and Skin Contact -- Eye contact with concentrated herbicide formulation may result in moderate irritation with corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness. Brief skin contact is essentially nonirritating. Prolonged or repeated skin contact may cause irritation, drying or flaking, or even a burn. Prolonged skin contact is not likely to result in absorption of harmful amounts.

Inhalation -- No adverse effects are anticipated from a single exposure to vapor.

Ingestion -- This material has low toxicity if swallowed. Swallowing small amounts incidental to normal handling operations is not likely to cause injury. However, swallowing larger amounts may cause injury.

Cancer and Birth Defect Information -- Fluroxypyr is classified as "not likely" to be a human carcinogen by the U.S. EPA. Fluroxypyr did not cause cancer or demonstrate developmental or reproductive toxicity in laboratory animals. Mutagenicity studies have been negative.

For more information, see the relevant Product Label or Safety Data Sheet.

Environmental Information

Based on the product chemistry and environmental data, when used appropriately fluroxypyr herbicide formulations are expected to have minimal impact on the environment and are not expected to leach into groundwater. Fluroxypyr is practically nontoxic to birds, honeybees and earthworms on an acute basis. However, it is slightly toxic to freshwater fish and aquatic invertebrates on an acute basis.

For more information, see the relevant Product Label or Safety Data Sheet.

Physical Hazard Information

Fluroxypyr herbicide formulations are stable under normal use and storage conditions. Avoid contact with acids, bases, and oxidizers. Under fire conditions oxides of nitrogen, hydrogen chloride, and hydrogen fluoride may be produced. Consult the Product Label for specific use and storage information.

For more information, see the relevant Product Label or Safety Data Sheet.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of fluroxypyr. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Product Label, Safety Data Sheet, or Contact Us.
Additional Information

- Safety Data Sheet (http://www.dowagro.com/label/index.htm)
- Contact Us (http://www.dowagro.com/contact/index.htm)
- STARANE® Herbicide Specimen Label, Dow AgroSciences LLC, Label Code: D02-075-004 (http://www.dowagro.com/label/index.htm)
- VISTA® Specialty Herbicide Specimen Label, Dow AgroSciences LLC, Label Code: D02-114-007 (http://www.dowagro.com/label/index.htm)

For more business information about fluroxypyr, visit Dow AgroSciences' website at: www.dowagro.com/.

References

3. Unpublished information provided by Dow AgroSciences.
10. Unpublished information provided by Dow AgroSciences.

® Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
Unpublished information provided by Dow AgroSciences.


NOTICES:

As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment is intended to give general information about the chemical (or categories of chemicals) addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

The information herein is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Dow be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information herein or the product to which that information refers.

Nothing contained herein is to be construed as a recommendation to use any product, process, equipment or formulation in conflict with any patent, and Dow makes no representation or warranty, express or implied, that the use thereof will not infringe any patent.

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

Dow makes no commitment to update or correct any information that appears on the Internet or on its World-Wide Web server. The information contained in this document is supplemental to the Internet Disclaimer, http://www.dow.com/homepage/disclosure.html

Form No. 233-00430-MM-0210