



SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name Flutamide
Product Number F9397
Brand Sigma Chemical

Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS, MO 63103 US
Technical Phone: 800-325-5832
Fax: 800-325-5052

Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>	<u>EC no</u>	<u>Annex I Index Number</u>
FLUTAMIDE	13311-84-7	No	236-341-9	

Formula C₁₁H₁₁F₃N₂O₃
Synonyms Flutamide, Niftholide, Niftolide, 4'-Nitro-3'-trifluoromethylisobutyranilide, Propanamide, 2-methyl-N-(4-nitro-3-(trifluoromethyl)phenyl)- (9CI), Sch 13521, alpha, alpha, alpha-Trifluoro-2-methyl-4'-nitro-m- propionotoluidide

Section 3 - Hazards Identification

Emergency Overview

Harmful.
Possible risk of harm to the unborn child. Harmful by inhalation, in contact with skin and if swallowed.
Target organ(s): Male reproductive system. Possible carcinogen. Calif. Prop. 65 reproductive hazard.

HMIS Rating
Health: 0* Flammability: 0 Reactivity: 0

NFPA Rating
Health: 0 Flammability: 0 Reactivity: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

Dermal Exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Autoignition Temp: N/A

Extinguishing Media

Suitable
Water spray, Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting

Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 8 - Exposure Controls / PPE

Engineering Controls

Use only in a chemical fume hood. Safety shower and eye bath.

Personal Protective Equipment

Other

Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

Section 9 - Physical/Chemical Properties

Appearance

Physical State
Solid

Molecular Weight: 276.2 AMU

pH N/A
BP/BP Range N/A
MP/MP Range N/A
Freezing Point N/A
Vapor Pressure N/A
Vapor Density N/A
Saturated Vapor Conc. N/A
SG/Density N/A
Bulk Density N/A
Odor Threshold N/A
Volatile% N/A

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VOC Content N/A
Water Content N/A
Solvent Content N/A
Evaporation Rate N/A
Viscosity N/A
Partition Coefficient N/A
Decomposition Temp. N/A
Flash Point °F N/A
Flash Point °C N/A

Explosion Limits N/A

Flammability N/A
Autoignition Temp N/A
Solubility N/A

N/A = not available

Section 10 - Stability and Reactivity

Stability
Stable
Stable.

Hazardous Decomposition Products
Hazardous Decomposition Products
Carbon monoxide, Carbon dioxide, Nitrogen oxides, Hydrogen fluoride.

Hazardous Polymerization
Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Route of Exposure
Multiple Routes
Harmful if swallowed, inhaled, or absorbed through skin. May cause irritation.

Target Organ(s) or System(s)
Male reproductive system.

Conditions Aggravated by Exposure
The toxicological properties have not been thoroughly investigated.

RTECS Number: UG5700000

Toxicity Data

Oral - Rat: 787 mg/kg (LD50)
Remarks: Kidney, Ureter, Bladder:Hematuria.
Kidney, Ureter, Bladder:Incontinence.
Nutritional and Gross Metabolic:Changes in:Body temperature decrease.

Intraperitoneal - Rat: 289 MG/KG (LD50)
Remarks: Behavioral:Altered sleep time (including change in righting reflex),
Lungs, Thorax, or Respiration:Cyanosis.
Nutritional and Gross Metabolic:Changes in:Body temperature decrease.

Oral - Dog: > 2000 mg/kg (LD50)
Remarks: Gastrointestinal:Nausea or vomiting.
Gastrointestinal:Other changes.
Liver:Other changes.

Chronic Exposure - Carcinogen

Rat - Oral: 2730 MG/KG 1Y 1
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic Effects: Testicular tumors.

Chronic Exposure - Teratogen

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	1050 MG/KG	Oral	(14-20D PREG)
Result:Specific Developmental Abnormalities: Urogenital system.			
Rat	525 MG/KG	Subcutaneous	(14-20D PREG)
Result:Specific Developmental Abnormalities: Skin and skin appendages. Specific Developmental Abnormalities: Urogenital system.			
Rat	275 MG/KG	Subcutaneous	(11-21D PREG)
Result:Specific Developmental Abnormalities: Central nervous system.			
Rat	400 MG/KG	Subcutaneous	(16-19D PREG)
Result:Specific Developmental Abnormalities: Endocrine system. Specific Developmental Abnormalities: Other developmental abnormalities.			
Mouse	300 MG/KG	Subcutaneous	(14-16D PREG)
Result:Specific Developmental Abnormalities: Urogenital system.			
Pig	1225 MG/KG	Oral	(6W-16W PREG)
Result:Effects on Embryo or Fetus: Other effects to embryo.			

Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>	<u>Cell Type</u>	<u>Mutation test</u>
Rat	50 UMOL/L	liver	DNA inhibition

Chronic Exposure - Reproductive Hazard

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.			
Rat	150 MG/KG	Oral	(30D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct. Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.			
Rat	375 MG/KG	Oral	(15D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct. Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.			
Rat	3840 MG/KG	Oral	(64D MALE)
Result: Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females). Specific Developmental Abnormalities: Musculoskeletal system.			
Rat	280 MG/KG	Intraperitoneal	(7D MALE)
Result: Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.			
Rat	70 MG/KG	Subcutaneous	(7D MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Other effects on male.			
Rat	65 MG/KG	Intramuscular	(10-22D PREG)
Result: Effects on Newborn: Delayed effects.			
Rat	29040 UG/KG	Intramuscular	(17W MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Testes, epididymis, sperm duct.			
Rat	350 MG/KG	Parenteral	(7D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct. Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands. Paternal Effects: Other effects on male.			
Rat	200 MG/KG	Parenteral	(16-17D PREG)
Result: Paternal Effects: Other effects on male. Endocrine:Androgenic.			
Mouse	80 MG/KG	Subcutaneous	(10D MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).			
Mouse	400 MG/KG	Subcutaneous	(10D MALE)
Result: Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.			
Mouse	1 GM/KG	Subcutaneous	(13-18D PREG)
Result: Effects on Newborn: Other postnatal measures or effects.			
Mammal	1404 MG/KG	Oral	(1-78D PREG)
Result: Effects on Newborn: Physical. Effects on Newborn: Other postnatal measures or effects.			

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: None

Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

EU Additional Classification

Symbol of Danger: Xn

Indication of Danger

Harmful.

Risk Statements R: 20/21/22 63

Harmful by inhalation, in contact with skin and if swallowed. Possible risk of harm to the unborn child.

Safety Statements S: 22 36

Do not breathe dust. Wear suitable protective clothing.

US Classification and Label Text

Indication of Danger

Harmful.

Risk Statements

Possible risk of harm to the unborn child. Harmful by inhalation, in contact with skin and if swallowed.

Safety Statements

Do not breathe dust. Wear suitable protective clothing.

US Statements

Target organ(s): Male reproductive system. Possible carcinogen. Calif. Prop. 65 reproductive hazard.

United States Regulatory Information

SARA Listed: No

United States - State Regulatory Information

California Prop - 65

California Proposition 65: This product is or contains chemical(s) known to the state of California to cause developmental toxicity.

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Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

Section 16 - Other Information

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate

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