SAFETY DATA SHEET

1. Identification

Product identifier **Amitraz**

Other means of identification

Catalog number 1028000

Chemical name Methanimidamide, N'-(2,4-dimethylphenyl)-N-[[(2,4-dimethylphenyl)imino]methyl]-N-methyl-

Recommended use Specified quality tests and assay use only.

Recommended restrictions Not for use as a drug. Not for administration to humans or animals.

Manufacturer/Importer/Supplier/Distributor information

Company name U. S. Pharmacopeia

Address 12601 Twinbrook Parkway
Rockville
MD
20852-1790
US

Telephone RS Technical Services 301-816-8129

Website www.usp.org

E-mail RSTECH@usp.org

Emergency phone number CHEMTREC within US & Canada 1-800-424-9300
CHEMTREC outside US & Canada +1 703-527-3887

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 4
Sensitization, skin	Category 1
Specific target organ toxicity, repeated exposure	Category 2 (central nervous system)

OSHA hazard(s) Not classified.

Label elements

Signal word Warning

Hazard statement Harmful if swallowed. May cause an allergic skin reaction. May cause damage to organs (central nervous system) through prolonged or repeated exposure.

Precautionary statement

Prevention Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves.

Response If swallowed: Call a poison center/doctor/medical professional/ if you feel unwell. Rinse mouth. If on skin: Wash with plenty of water/soap. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. Get medical advice/attention if you feel unwell.

Storage Not available.

Disposal Dispose of contents/container to an approved disposal site.

Hazard(s) not otherwise classified (HNOC) Not classified.

3. Composition/information on ingredients

Substance

Hazardous components

Chemical name	Common name and synonyms	CAS number	%
Amitraz		33089-61-1	100

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash off with soap and plenty of water. For minor skin contact, avoid spreading material on unaffected skin. If skin irritation or rash occurs: Get medical advice/attention.

Eye contact Rinse with water. Get medical attention if irritation develops and persists.

Ingestion IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

Most important symptoms/effects, acute and delayed May cause allergic skin reaction. Narcosis.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically.. Do not induce vomiting. Perform gastric lavage. For respiratory distress, administer oxygen and assist ventilation. For seizures, administer a benzodiazepine intravenously, followed by phenobarbital or propofol if the seizures recur. Monitor for hypotension, dysrhythmias, respiratory depression, and need for endotracheal intubation. Evaluate for hypoglycemia, electrolyte disturbances, hypoxia. For bradycardia, administer atropine intravenously. For hypotension, infuse 10- 20 mL/kg isotonic fluid. Administer dopamine or norepinephrine if hypotension persists. For severe hypertension, nitroprusside is preferred; labetalol, nitroglycerin, and phentolamine are alternatives. For hypothermia, administer intravenous diazepam and external cooling. For hyperthermia, use cold compresses, cooling blankets, and/or fans. For hyperthermia, lactic acidosis, or muscle destruction, administer neuromuscular blocking agents with continuous EEG monitoring, if necessary. For acute lung injury, maintain adequate ventilation and oxygenation. Early use of PEEP and mechanical ventilation may be needed. Monitor blood glucose level.

General information Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

5. Fire-fighting measures

Suitable extinguishing media Water. Water spray. Foam. Carbon dioxide (CO2). Powder.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical No unusual fire or explosion hazards noted.

Special protective equipment and precautions for firefighters Wear suitable protective equipment.

Fire-fighting equipment/instructions As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.

Specific methods Cool containers exposed to flames with water until well after the fire is out.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Avoid inhalation of dust from the spilled material. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid the generation of dusts during clean-up. For waste disposal, see section 13 of the SDS. Wash spill site.

7. Handling and storage

Precautions for safe handling As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly. Use of a designated area is recommended for handling of potent materials.

Conditions for safe storage, including any incompatibilities Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

8. Exposure controls/personal protection

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines No exposure standards allocated.

Appropriate engineering controls	Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Local exhaust ventilation such as a laboratory fume hood or other vented enclosure is recommended, particularly for grinding, crushing, weighing, or other dust-generating procedures.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.
Skin protection	
Hand protection	Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy.
Other	For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination.
Respiratory protection	Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134).
Thermal hazards	Not available.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	White to buff-colored powder or pale yellow needles.
Physical state	Solid.
Form	Powder.
Odor	Slight amine odor or odorless.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	186.8 - 190.4 °F (86 - 88 °C)
Initial boiling point and boiling range	> 392 °F (> 200 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.0000001 - 0.0000003 kPa at 25 °C
Vapor density	Not available.
Relative density	Not available.
Solubility in water	Practically insoluble.
Partition coefficient (n-octanol/water)	5.5
Auto-ignition temperature	Not available.
Viscosity	Not available.
Other information	
Chemical family	Triazapentadiene.
Molecular formula	C19H23N3
Molecular weight	293.41
Solubility (other)	Freely soluble in acetone; soluble in most organic solvents.

Specific gravity 1.1 - 1.28

10. Stability and reactivity

Reactivity No reactivity hazards known.

Chemical stability Stable at normal conditions.

Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

Conditions to avoid None known.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products NOx. Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.

11. Toxicological information

Information on likely routes of exposure

Ingestion Harmful if swallowed.

Inhalation Based on available data, the classification criteria are not met.

Skin contact May cause an allergic skin reaction.

Eye contact Based on available data, the classification criteria are not met.

Symptoms related to the physical, chemical, and toxicological characteristics Abdominal pain. Diarrhea. Nausea. Vomiting. Drowsiness. Weakness. Headache. Agitation. Pinpoint pupils. Shortness of breath.

Delayed and immediate effects of exposure Slow heartbeat. Fast heartbeat. Change in blood pressure. Low body temperature. Unconsciousness. Coma.

Acute toxicity Harmful if swallowed.

Product	Species	Test Results
Amitraz (CAS 33089-61-1)		
Acute		
Dermal		
LD50	Rabbit	> 200 mg/kg
	Rat	> 1600 mg/kg
Inhalation		
LC50	Rat	65000 mg/m3, 6 hours
Oral		
LD50	Baboon	100 mg/kg
	Dog	100 mg/kg
	Guinea pig	400 mg/kg
	Mouse	1600 mg/kg
	Rabbit	> 100 mg/kg
	Rat	400 mg/kg

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Local effects

Irritancy test
Result: Non-irritant.
Species: Rabbit
Organ: Eyes
Irritancy test
Result: Non-irritant.
Species: Rabbit
Organ: Skin

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization May cause an allergic skin reaction.

Sensitization

Buehler test
Result: Non-sensitizing.
Species: Guinea pig
Organ: Skin

Sensitization

Guinea pig maximization test
Result: Delayed contact hypersensitivity.
Species: Guinea pig
Organ: Skin

Germ cell mutagenicity Based on available data, the classification criteria are not met.
Not mutagenic in in vivo and in in vitro tests.

Carcinogenicity Based on available data, the classification criteria are not met.
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

10 - 13 mg/kg/day Carcinogenicity study
Result: No increase in the incidence, type, or time of appearance of tumors.
Species: Rat
Test Duration: 2 years
50 mg/kg/day Carcinogenicity study
Result: Increased incidence of hepatocellular carcinoma in females.
Species: Mouse
Test Duration: 2 years
60 mg/kg Carcinogenicity study
Result: Increased incidence of lymphoreticular tumors.
Species: Mouse
Test Duration: 80 weeks

Reproductive toxicity Based on available data, the classification criteria are not met.

Reproductivity

12 mg/kg/day Reproductivity study
Result: No evidence of birth defects, but a prolongation of estrous cycles occurred and offspring were heavier but had less bone development than untreated ones.
Species: Rat
25 mg/kg/day Reproductivity study
Result: No evidence of birth defects.
Species: Rabbit
60 mg/kg/day Reproductivity study
Result: Longer estrous cycles and a reduction in the blood concentration of progesterone.
Species: Mouse

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
Amitraz (CAS 33089-61-1)			
Crustacea	EC50	Daphnia magna	5.3 mg/l, 48 hours
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	0.34 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Not available.

Hazardous waste code Not regulated.

Waste from residues / unused products Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Amitraz)
Transport hazard class(es)	9
Subsidiary class(es)	Not available.
Packing group	III

IATA

UN number	UN3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Amitraz)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packaging group	III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

DOT; IATA

15. Regulatory information

US federal regulations CERCLA/SARA Hazardous Substances - Not applicable.

One or more components are not listed on TSCA.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
SARA 302 Extremely hazardous substance	No
SARA 311/312 Hazardous chemical	No

Other federal regulations

Safe Drinking Water Act (SDWA)	Not regulated.
Food and Drug Administration (FDA)	Not regulated.

US state regulations WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date 10-30-2006

Revision date 06-28-2013

Version # 02

Further information Not available.

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Revision Information This document has undergone significant changes and should be reviewed in its entirety.