

## MATERIAL SAFETY DATA SHEET

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Version 1.6

## Section 1 - Product and Company Information

Product Name MELATONIN CRYSTALLINE  
Product Number M5250  
Brand SIGMA

Company Sigma-Aldrich  
Address 3050 Spruce Street  
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

Substance Name	CAS #	SARA 313
MELATONIN	73-31-4	No

Formula C13H16N2O2  
Synonyms Acetamide, N-(2-(5-methoxy-1H-indol-3-yl)ethyl)-  
(9CI) \* N-Acetyl-5-methoxytryptamine \* Melatonin  
\* Melatonine \* 5-Methoxy-N-acetyltryptamine \*  
N-(2-(5-Methoxy-1H-indol-3-yl)ethyl)acetamide  
RTECS Number: AC5955000

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Caution: Avoid contact and inhalation. Target organ(s): Nerves.

## HMIS RATING

HEALTH: 1\*  
FLAMMABILITY: 0  
REACTIVITY: 1

## NFPA RATING

HEALTH: 1  
FLAMMABILITY: 0  
REACTIVITY: 1

\*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 contact, immediately wash skin with soap and copious amounts of water.

#### 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.

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### Section 5 - Fire Fighting Measures

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#### FLASH POINT

N/A

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

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.

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### Section 6 - Accidental Release Measures

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#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.

#### 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.

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### Section 7 - Handling and Storage

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#### HANDLING

User Exposure: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep tightly closed.  
Store at -20°C

#### SPECIAL REQUIREMENTS

Light sensitive.

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### Section 8 - Exposure Controls / PPE

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#### ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

#### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN

(EU). Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks.

Hand: Protective gloves.

Eye: Chemical safety goggles.

#### GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

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#### Section 9 - Physical/Chemical Properties

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Appearance	Physical State: Solid	
	Color: White	
	Form: Fine crystals	
Property	Value	At Temperature or Pressure
Molecular Weight	232.28 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	117 °C	
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	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

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#### Section 10 - Stability and Reactivity

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##### STABILITY

Stable: Stable.

Conditions to Avoid: Light.

Materials to Avoid: Strong oxidizing agents.

##### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

##### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Nerves.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral

Rat

> 3200 mg/kg

LD50

Intraperitoneal

Rat

1131 MG/KG

LD50

Subcutaneous

Rat

>1600 MG/KG

LD50

Intravenous

Rat

356 MG/KG

LD50

Oral

Mouse

1250 mg/kg

LD50

Intraperitoneal

Mouse

1375 MG/KG

LD50

Subcutaneous

Mouse

>1600 MG/KG

LD50

Intravenous

Mouse

180 MG/KG

LD50

CHRONIC EXPOSURE - CARCINOGEN

Species: Mouse

Route of Application: Subcutaneous  
Dose: 4200 MG/KG  
Exposure Time: 20W  
Frequency: I  
Result: Blood:Lymphomas including Hodgkin's disease.  
Blood:Leukemia Tumorigenic:Carcinogenic by RTECS criteria.

#### CHRONIC EXPOSURE - TERATOGEN

Species: Domestic Animals  
Dose: 16 MG/KG  
Route of Application: Implant  
Exposure Time: (17W PREG)  
Result: Specific Developmental Abnormalities: Endocrine system.

#### CHRONIC EXPOSURE - MUTAGEN

Species: Human  
Dose: 200 UMOL/L  
Cell Type: lymphocyte  
Mutation test: Other mutation test systems

Species: Rat  
Route: Subcutaneous  
Dose: 7 MG/KG  
Exposure Time: 8W  
Mutation test: Other mutation test systems

Species: Hamster  
Dose: 100 UMOL/L  
Cell Type: ovary  
Mutation test: DNA damage

#### CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Species: Rat  
Dose: 27 MG/KG  
Route of Application: Oral  
Exposure Time: (1D PRE)  
Result: Effects on Fertility: Other measures of fertility

Species: Rat  
Dose: 2800 UG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (28D PRE)  
Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Rat  
Dose: 140 UG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (28D PRE)  
Result: Maternal Effects: Ovaries, fallopian tubes.

Species: Rat  
Dose: 7500 UG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (1D PRE)  
Result: Effects on Fertility: Other measures of fertility

Species: Rat

Dose: 900 MG/KG  
Route of Application: Subcutaneous  
Exposure Time: (30D MALE)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).  
Effects on Fertility: Mating performance (e.g., # sperm positive females per # females mated; # copulations per # estrus cycles).

Species: Rat  
Dose: 1400 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (28D PRE)  
Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Rat  
Dose: 140 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (28D PRE)  
Result: Maternal Effects: Ovaries, fallopian tubes.

Species: Rat  
Dose: 80 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (20D MALE)  
Result: Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.

Species: Rat  
Dose: 500 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (1D PRE)  
Result: Effects on Fertility: Other measures of fertility

Species: Rat  
Dose: 500 UG/KG  
Route of Application: Intravenous  
Exposure Time: (1D PRE)  
Result: Effects on Fertility: Other measures of fertility

Species: Rat  
Dose: 33 MG/KG  
Route of Application: Subcutaneous  
Exposure Time: (1-22D PREG)  
Result: Effects on Newborn: Biochemical and metabolic.

Species: Rat  
Dose: 375 UG/KG  
Route of Application: Ocular  
Exposure Time: (1D PRE)  
Result: Effects on Fertility: Other measures of fertility

Species: Rat  
Dose: 50 UG/KG  
Route of Application: Ocular  
Exposure Time: (1D PRE)  
Result: Maternal Effects: Ovaries, fallopian tubes.

Species: Rat  
Dose: 36 MG/KG  
Route of Application: Parenteral  
Exposure Time: (30D MALE)  
Result: Paternal Effects: Testes, epididymis, sperm duct.

Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.

Species: Mouse  
Dose: 4 MG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (19D PRE)  
Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Mouse  
Dose: 560 MG/KG  
Route of Application: Subcutaneous  
Exposure Time: (70D PREG)  
Result: Specific Developmental Abnormalities: Endocrine system.  
Maternal Effects: Other effects.

Species: Mouse  
Dose: 14 MG/KG  
Route of Application: Parenteral  
Exposure Time: (70D MALE)  
Result: Paternal Effects: Testes, epididymis, sperm duct.

Species: Mouse  
Dose: 70 MG/KG  
Route of Application: Parenteral  
Exposure Time: (70D MALE)  
Result: Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.

Species: Mouse  
Dose: 5600 UG/KG  
Route of Application: Unreported  
Exposure Time: (14D PRE)  
Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Rabbit  
Dose: 7500 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (1D PRE)  
Result: Effects on Fertility: Other measures of fertility

Species: Hamster  
Dose: 12 MG/KG  
Route of Application: Subcutaneous  
Exposure Time: (60D MALE)  
Result: Paternal Effects: Other effects on male. Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands. Paternal Effects: Testes, epididymis, sperm duct.

Species: Hamster  
Dose: 1260 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (9W PRE)  
Result: Maternal Effects: Uterus, cervix, vagina. Maternal Effects: Ovaries, fallopian tubes.

Species: Hamster  
Dose: 9800 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (49D PRE)  
Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Hamster  
Dose: 7 MG/KG  
Route of Application: Subcutaneous  
Exposure Time: (35D MALE)  
Result: Paternal Effects: Testes, epididymis, sperm duct.

Species: Hamster  
Dose: 21 MG/KG  
Route of Application: Parenteral  
Exposure Time: (15W MALE)  
Result: Paternal Effects: Testes, epididymis, sperm duct.  
Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.

Species: Hamster  
Dose: 14 MG/KG  
Route of Application: Parenteral  
Exposure Time: (10W PRE)  
Result: Maternal Effects: Other effects. Maternal Effects: Uterus, cervix, vagina.

Species: Hamster  
Dose: 12480 UG/KG  
Route of Application: Implant  
Exposure Time: (60D MALE)  
Result: Paternal Effects: Testes, epididymis, sperm duct.  
Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.

Species: Hamster  
Dose: 4032 UG/KG  
Route of Application: Implant  
Exposure Time: (42D MALE)  
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Species: Gerbil  
Dose: 14 MG/KG  
Route of Application: Unreported  
Exposure Time: (56D MALE)  
Result: Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands. Paternal Effects: Testes, epididymis, sperm duct.

Species: Domestic Animals  
Dose: 1700 UG/KG  
Route of Application: Oral  
Exposure Time: (51D PRE)  
Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Domestic Animals  
Dose: 1429 UG/KG  
Route of Application: Oral  
Exposure Time: (30D PRE)  
Result: Maternal Effects: Other effects. Maternal Effects: Menstrual cycle changes or disorders.

Species: Domestic Animals  
Dose: 1200 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (40D PRE)

Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Domestic Animals

Dose: 4600 UG/KG

Route of Application: Intravaginal

Exposure Time: (1D PRE)

Result: Maternal Effects: Other effects.

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## Section 12 - Ecological Information

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No data available.

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## Section 13 - Disposal Considerations

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### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. 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.

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## Section 14 - Transport Information

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### 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.

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## Section 15 - Regulatory Information

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### US CLASSIFICATION AND LABEL TEXT

US Statements: Caution: Avoid contact and inhalation. Target organ(s): Nerves.

### UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

### 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

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## Section 16 - Other Information

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### 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 safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice

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