MATERIAL SAFETY DATA SHEET
As per Globally Harmonized System (GHS)

Product	**Niacinamide**	**MSDS NO.**	**QA/MSDS/012**
Issue Date	**Oct. 2013**	**Supersedes**	**Nil**
Effective Date	**Oct. 2013**	**Revision No.**	**00**
Review Date	**Sept. 2015**	**Page No.**	**Page 1 of 20**

1: IDENTIFICATION

Product information

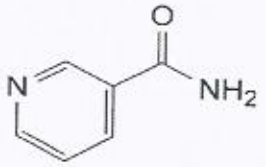
Product name : NIACINAMIDE

Molecular formula : 122.1

CAS RN : 98-92-0

EC# : 202-713-4

Structural formula :



Types/Grades : Solid Crystalline Powder/IP/BP/USP

Molecular Formula : $C_6H_6N_2O$

Synonyms : 3-Pyridinecarboxamide, Niacinamide, Nicotinamide
3-Carbamoylpyridine, 3-Pyridinecarboxamide
Vitamin B, beta-Pyridinecarboxamide
m-(Aminocarbonyl)pyridine

Other Languages : De: Nicotinamid
Es:Nicotinamida
Fr: Nicotinamide

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Systematic Name : 3-Pyridinecarboxamide

Use of the Substance/Preparation : Formulated in B complex formulation for Human Consumptions

Product Uses:

Niacinamide is freely soluble in water,in alcohol and soluble in Glycerene, soluble Vitamin and finds its application as a nutrient supplement in Pharmaceutical products. Has been used in the enrichment of bread, flour, and other grain-derived products. Animal feed is routinely supplemented with nicotinamide. It is also used in multi-vitamine preparation and dietary supplement. It is used in the treatment of pellagra.

Manufacturer Supplier : Lasons India Pvt. Ltd.

Registered Office : 8, New Jagruti, 227, S. V. Road,
Bandra (W), Mumbai – 400 050. India.
Telephone #: 91-22-26441728/26441729
Fax – 91-22-26428131
E – Mail : info@lasons.com
Web : www.lasons.com

Factory Address: : C – 18, MIDC, Taloja, District – Raigad,
Maharashtra. India.
Telephone #: 91-22-27410146/47
Fax: - 91-22-27402359
E – Mail: lasons_india2005@rediffmail.com.

2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Serious eye damage/eye irritation: Category 2 A

Hazard Pictogram: GHS 07

Signal Word: Warning!

HAZARD AND PRECAUTIONARY STATEMENTS: HAZARD STATEMENTS:
H319: Causes serious eye irritation.

PRECAUTIONARY STATEMENTS:

Prevention

P264: Wash hands, eyes and face thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

Storage

P405: Store locked up.

Disposal

P501: Dispose of contents/container in accordance with local/regional/national/ international

3. COMPOSION/INFORMATION ON INGREDIENTS

Sr. No.	Chemical	CAS #	EC#	Purity
1.	Niacinamide	98 – 92 – 0	202-713-4	>99%

4. HAZARDS IDENTIFICATION [FIRST AID MEASURES]

Key symptoms

Acute effects: It causes serious eye irritation.

Chronic effects: Affects the kidneys, eyes & liver.

Potential Acute Health Effects:

Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Potential Chronic Health Effects:

Carcinogenic effects : Not available.

Mutagenic effects : Not available.

Teratogenic effects : Not available.

Developmental toxicity : Not available

Repeated or prolonged exposure is not known to aggravate medical condition.

Eye Contact : Wash with Ample of water

Skin Contact : Wash with Water

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if you feel unwell. Monitor for respiratory distress. Apply artificial respiration if not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Toxic vapours may be released on thermal decomposition including nitrogen oxides, carbon monoxide and cyanide.

Skin Contact: After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds. Crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact : Not available.

Inhalation : Not available.

Serious Inhalation : Not available.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie belt or waistband. If the victim

is not breathing, perform mouth – to – mouth resuscitation. Seek immediate medical attention.
Serious Ingestion: not available.

5. FIRE AND EXPLOSION DATA

Flammability of the Product : Non Flammable Solid

Flash Points : 182°C

Products of combustion : These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2.....)

Extinguishing media:

Appropriate extinguishing media: Dry chemical powder, carbon dioxide and alcohol resistant foam. Water may be in effective. Water sprays can be effective in cooling down the fire-exposed containers and knocking down the Vapour. Water jet may be used to flush spills away and dilute the same to non-flammable mixtures fog or alcohol-resistant foam by directing streams to the periphery of the fires to prevent spread. Do not permit water to get inside containers.

Special Protective Equipment and Precautions for Fire Fighter:

- Evacuate the area and fight fires from a safe distance.
- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters(1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions or as per locally valid procedures.
- Fire fighters must were Self Contained Breathing Apparatus (SCBA) and full protective clothing. The chemical is harmful in contact with skin.
- Report any run-off of fire waters contaminated with this chemical as per local and federal procedures applicable.

Unusual fire and explosion hazard:

- Toxic vapours may be released on thermal decomposition including nitrogen oxides, carbon monoxide and cyanide.
- High vapor concentration may result in an explosion hazard.
- Vapors are heavier than air. It may considerable distance from source and flashback.

6. ACCIDENTAL RELEASE MEASURES

Small Spill:

- Clean up all spills immediately following relevant Standard Operating Procedures.
- Avoid breathing vapors and contact with skin and eyes.
- Shut off leak source if possible.
- Shut off all possible sources of ignition.
- Were protective clothing, boots, impervious gloves and safety glasses.
- Wipe up.
- Decontaminate all equipment.
- Use non-sparking tools.

Large Spill:

- Alert Emergency Responders and tell them location and nature of hazard.
- Shut off all possible source of ignition and increase ventilation.
- Wear protective clothing, full boots, impervious gloves, safety glasses and Self Contained Breathing Apparatus (SCBA), as may be deemed appropriate.
- Clear area of personnel and move upwind.
- Stop leaks if possible.

- Prevent, by any means available, spillage from entering draind or water and watercourses.
- Collect recoverable product into labeled containers for recycling, recovery or disposal.
- Contain spill with lime or absorbent material, and leave for at least 1 hr. before washing.
- Clean up all tools and equipment.
- Inform authorities in event of contamination of any public sewers, drains or water bodies.

7. HANDLING AND STORAGE

Handling:

- Do not breathe vapor or mist.
- Wear protective gloves/clothing and eye/face protection.
- Wash thoroughly after handling.
- Ground and secure containers when dispensing or pouring product.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Launder contaminated clothing before r e-use.
- If on skin or hair, IMMEDIATELY remove all contaminated clothing and rinse/shower plenty of water.
- Use in a well ventilated place/Use protective clothing commensurate with exposure levels.

Storage:

- Store in a cool, well ventilated place.
- Store away from incompatible materials.

- Keep only in original container.
- Keep securely closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

Chemical Name	ACGIH	NIOSH	OSHA-Final PELs
Niacinamide	None Listed	None Listed	None Listed

Exposure Limits (International): OEL-RUSSIA: STEL 1 mg/m^3

Exposure Controls:

- Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. Local ventilation is usually preferred. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection:

- Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Eyes: Safety goggles/ Chemical Safety glasses and Face shield.

Clothing: Boots and clothing to prevent contact.

Respirator: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European standard EN 149. Always use a NIOSH or European standard EN 149 approved respirator when necessary.

Hand Protection:

In full contact:

Glove material: nitrile rubber

Layer thickness: 0.11mm

Breakthrough time: >480 Min.

In Splash contact:

Glove material: nitrile rubber

Layer thickness: 0.11mm

Breakthrough time: >480 Min.

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374, for example KCL 740 Dermatril® (full contact), 740 Dermatril® (splash contact).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Sr.No.	Parameter	Typical Value
1.	Appearance	White crystalline solid
2.	Solubility	Freely soluble in water, in alcohol and soluble in Glycerene
3.	Odor	Odorless
4.	Odor Threshold	Not availabel
5.	Molecular Weight	122.13
6.	pH @5%aq solution water at 25°C	5.35 to 5.5
7.	Boiling Point	157 deg C at $5X10^{-4}$ mm Hg

8.	Melting Point	128-131 ^{o}C
9.	Specific Gravity	1.400 at 25 ^{o}C
10	Flash point	182 ^{o}C
11.	Vapor pressure	$4.2X10^{-4}$ mm Hg at 25 deg C (est)
12.	Vapor density (air=1)	Not available
13.	Explosive limits	Not available
14.	Evaporation rate (n-BuAc=1)	Not available
15.	Log Kow (Octonol/water)	-0.37 (estimated)
16.	Auto-ignition temperature	480 ^{o}C
17.	Decomposition temperature	>140 ^{o}C
18.	Viscosity	Not available
19.	Bulk density	~360 Kg/m^3
20.	pKa (@20 ^{o}C)	3.35
21.	Koc	51.56 (estimated)
22.	Flammable material	No
23.	Oxidizer	No
24.	Pyrophric material	No
25.	Explosive Material	No

10. STABILITY AND REACTIVITY DATA

Stability : Product is stable under normal temperature and conditions.

Conditions to avoid : Dust generation.

Incompatible Chemicals : Strong acids and bases, strong oxidizing agents.

Hazardous decomposition : Burning may produce hazardous combustion gases like Nitrogen oxide carbon monoxide, carbon dioxide.

Hazardous Polymerization : Not expected.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:

- It causes irrition to the mucous membranes and upper respiratory tract.
- It causes eye irritation.

Chronic Effects:

- Affects the kidneys, eyes & liver.

- **RTECS#:** QS3675000
- **LD50/LC50:**

Acute Oral Ld50 (Rat)	3530-3540mg/kg
Acute Dermal Ld50: (Rabbit)	>2000 mg/kg

- Skin irritation: rabbit, Patch test OECD 404, 1981: Not irritating
- Eye irritation: rabbit, OECD Guideline 405: moderately irritating

- **Sensitization**

Type: Beuhler test.

Species: Guinea pig.

Method: OECD Guidline-406 "Skin sensitization", 1981.

Result: not sensitizing

REPEATED DOSE TOXICITY:

Species: Rat (Wistar)

Route of administration: oral feed

Exposure period: 28 days

Doses: 215 and 1000 mg/kg

Method: OECD Guideline- 407 " Repeated dose oral toxicity- Rodent"

Year: 1981

GLP: yes

Remark: Effects: decreased body weight and food consumption in males; increased Transaminases; spleen weight reduced in males liver, weight increased in females; minimal to mild hypertrophy in liver; reduced extramedullary hematopoiesis, all findings were reversible.

Skin corrosion/irritation:

No information is available.

Serious eye damage/irritation:

Causes serious eye irritation.

Respiratory or skin sensitization:

No information is available.

Germ cell Mutagenicity:

No data is available.

Carcinogenicity:

Species: Mouse (swiss)

Route of administration: oral feed

Exposure period: life span study (110 weeks)

Doses: 1%, average daily intake, m: 100.5 mg, f: 66.3 mg.

Method: Other

GLP: No

Result: Consumption of nicotinamide caused no apparent carcinogenic action

Source: Degussa Antwerpen N.V. Antwerpen 4

Reproductive toxicity:

No data is available.

STOT-single exposure :

No data is available.

STOT- repeated exposure:

No data available.

Aspiration Hazards:

No data available.

12. ECOLOGICAL INFORMATION

Toxicity (Ecotoxicity):

- Fish toxicity: P.reticulata LC50 : 4200 mg/l/96h
- Daphnia magna EC50: >1000 mg/L/24 hr.
- Algeal toxicity: Desmodesmus subspicatus NOEC: 560 mg/l/72h.

Persistence and degradability:

AEROBIC: Nicotinamide was determined to be readily biodegradable in an aerobic screening test recommended by the Department of Environment, Standing Committee of Analysts, UK(1).

ANAEROBIC: Nicotinamide was not degraded using an anaerobic spore-forming rod (Clostridia sp.) bacteria isolated from Potamac River mud(1).

Bio accumulative potential(Predicted):

BCF = 3

Log Kow = -0.37

Based on the Log Kow and Bio concentration factor value it is expected to have low potential to concentrate in fatty tissue of fish and aquatic organisms.

Mobility in soil:

- Log Koc = 15 (If released to soil, nicotinamide is expected to have very high mobility based upon estimated KOC value.)
- Henry's Law Constant = 2.9X10-12 atm-cu m/mole. (Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant)
- Log Kow = -0.37(Very Low bioaccumulation is expected).

OTHER ADVERSE EFFECTS

Environment Fate:

Nicotinamide's production and use as a medication and dietary supplement may result in its release to the environment through various waste streams.
If released to air, an estimated vapor pressure of 4.2X10-4 mm Hg at 25 deg C indicates nicotinamide will exist in both the vapor and particulate phases in the atmosphere.

Vapor-phase nicotinamide will be degraded in the atmosphere by reaction with photochemically- produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 7 days.
If released to soil, nicotinamide is expected to have ver y high mobility based upon an estimated Koc of 15.
Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 2.9X10-12 atm-cu m/mole.
If released into water, nicotinamide is not expected to adsorb to suspended solids and sediment based upon the estimated Koc.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

- Burn in a chemical incinerator equipped with an afterburner and scrubber.
- Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws. Note that disposal regulations may also apply to empty containers and equipment rinsates.

14. TRANSPORT INFORMATION

- This substance is considered to be Non Hazardous for transport by Air/Rail/Road and Sea and thus not regulated by IATA/ICAO/ARD/RID/IMO/IMDG.

Environmental hazards :

- It is expected that this chemical is not a marine pollutant and is not Harmful to the Aquatic environment.

15. OTHER REGULATORY INFORMATION

European Union Information

Classification as per Regulation 67/548/EEC: Xi: R36

Xi- Irritant

Risk Phrases:

R36 : Irritating to eyes.

Safety Phrases:

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

Classification as per CLP Regulation 1272/2008:

- Eye Irrit Cat.2
- Hazard Statements: : H319

US information

TSCA

CAS# 98-92-0 is listed on the TSCA inventory.

WGK (Water Danger/Protection)

CAS# 98-92-0: 0

Canada

CAS# 98-92-0 is listed on Canada's DSL List.

CAS# 98-92-0 is not listed on Canada's Ingredient Disclosure List.

16. OTHER INFORMATION

- **Compilation information of safety data sheet**
- **Chemical: Niacinamide**
- **CAS #: 98-92-0**

(a) A key or legend to aberrations and acronyms used in the safety data sheet:

- PBT =Persistent Bioaccumulative and Toxic.
- vPvB= Ver y Persistent and Ver y Bioaccumulative.
- SCBA= Self Contained Breathing Apparatus.
- NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit.
- OSHA PEL=Occupational Safety and Health Adminstration Permissible Exposure Limit.
- OELTWA= Occupational Exposure Limit Time Weighted Averages.
- IDLH= Immediately Dangerous to Life or Health.
- UEL= Upper Explosive Limit.
- LEL= Lower Explosive Limit.
- RTECS= Registry of Toxic Effects of Chemical Substances.
- NTP=National Toxicology Programm.
- IARC= International Agency for Research on Cancer.
- EPA=Environmental Protection Agency.
- TSCA= Toxic Substances Control Act.
- CERCLA= Comprehensive Environmental Response, Compensation, and Liability Act.
- SARA= Superfund Amendments and Reauthorization Act.
- NFPA= National Fire Protection Association.
- WHIMS= Workplace Hazardous Materials Information System.
- DSL/NDSL= Domestic/Non-Domestic Substances List.
- CSR=Chemical Safety Report.
- BCF = Bio Concentration Factor.
- DNEL = Derived No Effect Level.

- PNEC = Predicted No Effect Concentration.
- TLV = Threshhold Limit Value.
- ACGIH = American Conference of Governmental Industrial Hygienists.
- REACH = Registration, Evaluation .Authorisation and Restriction of Chemicals.
- CLP = Classification, Labelling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonised System.
- ADR = Accord europeen relative au transport international de marchandises.
- IMDG-Code = International Maritime Code for Dangerous Goods.
- EmS = Emergency measures on Sea.
- ICAO = International Civil Aviation Organization.
- IATA/DGR= International Air Transport Association/Dangerous Goods Regulation.

(b) Key Literature reference and sources for data

Biographical reference and data sources :

- CLP REG (regulation) (EC) no. 1272/2008, last modification by regulation (EC) no. 790/2009
- DIR 67/548/EWG, last modification by DIR 2009/2/EC
- REG (EC) no. 1907/2006, last modification by REG (EC) Nr. 453/2009
- OECD Guideline-407 "Repeated dose oral toxicity-Rodent" Year: 1981
- Degussa Antwerpen N.V. Antwerpen 4
- Department of Environment, Standing Committee of Analysts, UK(1).

Internet:

- RTECS
- ESIS

LASONS

LASONS INDIA PVT.LTD.
C-18, MIDC, Taloja, Navi

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Company's Declaration:

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Signature	26/10/2013	26/10/2013	26/10/2013