1 - Product and Company Information

ProductName	(-)-NICOTINE HEMISULFATE 40% AQUEOUS SOLUTION

2 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Toxic in contact with skin and if swallowed. Very toxic by inhalation. Irritating to eyes, respiratory system and skin.
Possible risk of harm to the unborn child.

3 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I
(-)-NICOTINE HEMISULFATE 40% AQUEOUSSOLUTION	65-30-5	200-606-7	None

Formula	C20H28N4·H2O4S
Molecular Weight	422.6 AMU
Synonyms	ENT 2,435 * l-1-Methyl-2-(3-pyridyl)-pyrrolidine sulfate * (S)-3-(1-Methyl-2-pyrrolidinyl)pyridine sulfate (2:1) * 1-3-(1-Methyl-2-pyrrolidyl)pyradine sulfate * Nicotine sulfate * Nikotinsulfat (German) * Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, sulfate (2:1) * Pyrrolidine, 1-methyl-2-(3-pyridyl)-, sulfate * Sulfate de nicotine (French)

4 - First Aid Measures

AFTER INHALATION
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

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

AFTER EYE CONTACT
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.

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

5 - Fire Fighting Measures

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

SPECIAL RISKS
Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING
Directions for Safe Handling: Do not get in eyes, on skin, on clothing. Do not breathe vapor. Avoid prolonged or repeated exposure.

STORAGE
Conditions of Storage: Keep tightly closed.

8 - Exposure Controls / Personal Protection

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

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory Protection: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as

a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance — Physical State: Liquid

Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	N/A	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: QS9625000

ACUTE TOXICITY

LD50
Oral
Rat
50 mg/kg

LC50
Inhalation
Rat

22 mg/m3

LD50
Skin
Rat
285 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Convulsions or effect on seizure threshold. Behavioral:Tremor.

LD50
Oral
Mouse
8.55 mg/kg
Remarks: Lungs, Thorax, or Respiration:Dyspnea. Behavioral:Tremor. Behavioral:Muscle contraction or spasticity.

LD50
Intraperitoneal
Mouse
10200 UG/KG

LD50
Intraperitoneal
Cat
20 MG/KG

LD50
Skin
Rabbit
50 mg/kg

LD50
Oral
Pigeon
75 mg/kg

LD50
Oral
Quail
316 mg/kg

LD50
Oral
Duck
75 mg/kg

LD50
Oral
Bird (wild)
32 mg/kg

SIGNS AND SYMPTOMS OF EXPOSURE
Extreme nausea, vomiting, evacuation of bowel and bladder, mental confusion, twitching, convulsions. Exposure can cause:

ROUTE OF EXPOSURE
Skin Contact: Causes skin irritation.
Skin Absorption: Toxic if absorbed through skin. Readily absorbed through skin.
Eye Contact: Causes eye irritation.
Inhalation: Material is irritating to mucous membranes and upper respiratory tract. May be fatal if inhaled.

Ingestion: Toxic if swallowed.

TARGET ORGAN INFORMATION
Skeletal muscle. Nerves.

CHRONIC EXPOSURE - TERATOGEN

Species: Mouse.
Dose: 1670 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (6-15D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Effects on Embryo or Fetus: Other effects to embryo. Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD
Result: May cause reproductive disorders.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL
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.

14 - Transport Information

RID/ADR
UN#: 1658
Class: 6.1
PG: II
Proper Shipping Name: Nicotine sulphate, solution

IMDG
UN#: 1658
Class: 6.1
PG: II
Proper Shipping Name: Nicotine sulphate, solution
Marine Pollutant: No
Severe Marine Pollutant: No

IATA
UN#: 1658
Class: 6.1
PG: II
Proper Shipping Name: NICOTINE SULPHATE SOLUTION
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES
INDICATION OF DANGER: T+
Very toxic.
R-PHRASES: 24/25-26-36/37/38-63
Toxic in contact with skin and if swallowed. Very toxic by

inhalation. Irritating to eyes, respiratory system and skin.
Possible risk of harm to the unborn child.
S-PHRASES: 26-36/37/39-28-45
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. After contact with skin, wash immediately with plenty of soap and water. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16 - Other Information