MSD is a tradename of Merck & Co., Inc., with headquarters in Whitehouse Station, N.J., U.S.A.

SAFETY DATA SHEET

This SDS was created in accordance with Regulation EC 1907/2006 and all amendments. Merck urges each user or recipient of this SDS to read the entire data sheet to become aware of the hazards associated with this material.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

PRODUCT IDENTIFIER

SDS NAME: **ALBUTEROL SULFATE SOLUTION**

SYNONYM(S): PROVENTIL Solution; Proventil solution for Inhalation 0.083%; Proventil Solution for Inhalation 0.5%; PROVENTIL Solution for Inhalation; PROVENTIL Inhalation Solution; Albuterol Solution for Inhalation; Albuterol Sulfate Solution for Inhalation; Albuterol Inhalation Solution; Albuterol Sulfate Inhalation Solution; Albuterol Sulfate Solution

SDS Number: SP000223G

REACH REGISTRATION NUMBER Not available

RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

IDENTIFIED USE(S): Drug Product

USE(S) ADVISED AGAINST: None known.

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

EU SUPPLIER/MANUFACTURER: MSD Sentipharm AG
Leuvensesteenweg 242
3190 Boortmeerbeek, Belgium

MERCK SDS HELPLINE: +1 (908) 473-3371 (Worldwide)
Monday to Friday, 9am to 5pm (US Eastern Time)

SDS EMAIL: mercksds@merck.com

EMERGENCY TELEPHONE NUMBER

EMERGENCY NUMBER(S): +1 (908) 423-6000 (24/7/365) English Only

EU Transportation Emergencies - Carechem24:
+44 (0)208 762 8322 (24 hours/7 days/week)

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Classification according to EC Directive 1272/2008:
Resp. Sens. 1 (H334)

Classification according to EC Directives 67/548/EEC (substances) or 1999/45/EC (mixtures):
Based on available data, this preparation does not meet the criteria to be classified as hazardous according to EC DIrective 1999/45/EC.

COLOR: Colorless to light yellow
FORM: Liquid
ODOR: Odor unknown

LABEL ELEMENTS

SIGNAL WORD: DANGER

HAZARD STATEMENT(S):
May cause allergy or asthma symptoms or breathing difficulties if inhaled
PRECAUTIONARY STATEMENT(S):
Avoid breathing dust/fume/gas/mist/vapors/spray. In case of inadequate ventilation wear respiratory protection. IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. Dispose of contents/container to an approved incineration plant.

OTHER HAZARDS

Health-Related Hazards:

May cause effects to:
cardiovascular system
nervous system

LISTED CARCINOGENS

No carcinogens or potential carcinogens listed by IARC or EU Directive 90/394 (Annex I) in this mixture.

Environmental-Related Hazards:

This substance has not been fully tested to meet the criteria for listing as a PBT or a vPvB.

Other Hazards:

No other information known.

SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS

SUBSTANCE

CHEMICAL FORMULA: Mixture.

The formulations for these products are proprietary information. These formulations have the same hazardous profile; however, the presence of hazardous ingredients may vary by formulation. Only hazardous ingredients in concentrations of 1% or greater and/or carcinogenic ingredients in concentrations of 0.1% or greater are listed in the Chemical Composition table. Active ingredients in any concentration are listed. For additional information about carcinogenic ingredients see Section 2.

This formulation may contain some sulfuric acid for pH adjustment.

CHEMICAL COMPOSITION

INGREDIENT	CAS NUMBER	EC NUMBER	REACH REGISTRATION NUMBER	EU CLASSIFICATION	GHS CLASSIFICATION	PERCENT	REASON FOR LISTING
Albuterol Sulfate	51022-70-9	256-916-8	Not available	T;R48/23 , Xn;R42	Acute Tox. 3 (H331), Resp. Sens. 1 (H334), STOT RE 1 (H372),	0.6	Active Pharmaceutical Ingredient Classified
Benzalkonium Chloride	8001-54-5	Not available	Not available	Xn;R21/R22 C;R35 N; R50	Acute Tox. 4 (H312) Acute Tox. 4 (H302) Skin Corr. 1B (H314) Aquatic Acute 1 (H400)	<0.1	Classified

Fields in the above table that do not contain data indicate that the substance(s) have not been listed or classified according to EU criteria.

ADDITIONAL INFORMATION: This MSDS is written to provide health and safety information for individuals who will be handling the final product formulation during research, manufacturing, and distribution. For health and safety information for individual ingredients used during manufacturing, refer to the appropriate MSDS for each ingredient.

See section 16 for definitions of risk phrases and GHS classifications.

SECTION 4. FIRST AID MEASURES

FIRST AID MEASURES

INHALATION: Remove to fresh air. Administer artificial respiration if breathing has ceased. IMMEDIATELY consult a physician.

SKIN CONTACT: In case of skin contact, IMMEDIATELY flush exposed skin thoroughly with plenty of water. While wearing protective gloves, remove any contaminated clothing, including shoes and continue to wash skin thoroughly with soap and water for at least 15 minutes. Get IMMEDIATE medical attention. Treat symptomatically.

EYE CONTACT: In case of eye contact, immediately rinse eyes thoroughly with plenty of water. If wearing contact lenses, remove only after initial rinse, and continue rinsing eyes for at least 15 minutes. If irritation occurs or persists, consult a physician.

INGESTION: Do not induce vomiting unless under the direction of a qualified medical professional or Poison Control Center. IMMEDIATELY consult a physician. Do not attempt to give anything by mouth to a seizing, drowsy or unconscious person. If alert, rinse mouth and drink a glass of water.

FIRST AID RESPONDER PROTECTION: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves with appropriate personal protective equipment. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. DO NOT use mouth-to-mouth method if victim ingested or inhaled the substance.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

The health hazard information presented below is for the active ingredient in this product. The toxicological properties of the mixture(s) have not been fully characterized in humans or animals. However, there are data to describe the toxicological properties of the individual ingredients. The following summary is based upon available information about the individual ingredients of the mixture(s), or of the expected properties of the mixture(s).

Albuterol is a beta2-adrenergic bronchodilator used in the treatment of restrictive airway disorders such as asthma or chronic obstructive pulmonary disorder (COPD). Albuterol may be irritating to the eyes, skin, respiratory system or mucous membranes. It has been reported to cause palpitations, increased heart rate and blood pressure, angina, heartburn, tremors, dizziness, nervousness, insomnia, imbalance, headache, bronchospasm, nausea, vomiting, and dryness and swelling of the mouth and throat. These effects are expected following treatment with beta2-adrenergic agonists. Fatalities have been reported with excessive use of inhaled sympathomimetic drugs. Albuterol may also cause sensitization or allergic reactions including wheals, swelling, rash, bronchospasm, anaphylaxis or edema of the mouth and throat in sensitive individuals.

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

NOTE TO PHYSICIAN: Albuterol is a sympathomimetic amine and should be used with caution with individuals with cardiovascular disorders, hyperthyroidism or diabetes mellitis, ketoacidosis, or are responsive to other sympathomimetic amines.

SECTION 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA:
Carbon dioxide (CO2), extinguishing powder or water spray.

UNSUITABLE EXTINGUISHING MEDIA:
None known.

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

SPECIAL FIRE HAZARDS:
None known.

ADVICE FOR FIREFIGHTERS

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing and self-contained breathing apparatus (SCBA).

See Section 9 for Physical and Chemical Properties.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

PERSONAL PRECAUTIONS:
Wear appropriate personal protective equipment as specified in Section 8. Keep personnel away from the clean-up area.

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

SPILL RESPONSE / CLEANUP:
All spills should be handled according to site requirements and based on precautions cited in the MSDS. In the case of liquids, use proper absorbent materials. For laboratories and small-scale operations, incidental spills within a hood or enclosure should be cleaned by using a HEPA filtered vacuum or wet cleaning methods as appropriate. For large dry or liquid spills or those spills outside enclosure or hood, appropriate emergency response personnel should be notified. In manufacturing and large-scale operations, HEPA vacuuming prior to wet mopping or cleaning is required.

See Sections 9 and 10 for additional physical, chemical, and hazard information.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

HANDLING:
Keep containers adequately sealed during material transfer, transport, or when not in use. Wash face, hands, and any exposed skin after handling. Do not eat, drink, or smoke when using this substance or mixture.

Appropriate handling of this material is dependent on many factors, including physical form, duration and frequency of process or task, and effectiveness of engineering controls. Site-specific risk assessments should be conducted to determine the feasibility and the appropriateness of all exposure control measures. See Section 8 (Exposure Controls) for additional guidance.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY IMCOMPATIBILITIES

STORAGE:
Store in a cool, dry, well ventilated area.

SPECIFIC END USE(S)
Refer to Section 1 for identified use(s).

See Section 8 for exposure controls and additional safe handling information.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

CONTROL PARAMETERS

OCCUPATIONAL EXPOSURE BAND (OEB):
OEB 4: 1-10 mcg/m^3. Materials in an OEB 4 category are considered high health hazards. The OEB is range of airborne concentrations expressed as an 8-hour Time Weighted Average (8-hr. TWA) and is intended to be used with Industrial Hygiene Risk Assessment to assist with industrial hygiene sampling and selection of proper controls for worker protection. Consult your site safety and industrial hygiene staff for guidance on handling and control strategies.

OCCUPATIONAL EXPOSURE GUIDELINE (OEG): Internal Occupational Exposure Limit of 1 mcg/m^3 (8-hr TWA) for Albuterol sulfate has been established.

EXPOSURE LIMIT VALUES:

No exposure limits are available for the active ingredient(s) or any other hazardous ingredient in this formulation.

EXPOSURE CONTROLS

The health hazard risks of handling this material are dependent on many factors, including physical form, duration and frequency of process or task, and effectiveness of engineering controls. Site-specific risk assessments should be conducted to determine the feasibility and the appropriateness of all exposure control measures. Exposure controls for normal operating or routine procedures follow a tiered strategy. Engineering controls are the preferred means of long-term or permanent exposure control. If engineering controls are not feasible, appropriate use of personal protective equipment (PPE) may be considered as alternative control measures. Exposure controls for non-routine operations must be evaluated and addressed as part of the site-specific risk assessment.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE):

Body Protection:	In small-scale or laboratory operations, lab coats or equivalent protection is required. Disposable Tyvek or other dust impermeable suit should be considered based on procedure or level of exposure. Use of additional PPE such as shoe coverings, gauntlets, hood, or head covering may be necessary. Consult your site safety staff for guidance. In large-scale or manufacturing operations, disposable Tyvek or other dust impermeable suit is recommended and based on level of exposure. Use of additional PPE such as shoe coverings, gauntlets, hood, or head covering may be necessary. Consult your site safety staff for guidance.
Skin Protection:	Gloves that provide an appropriate barrier to the skin are recommended if there is potential for contact with this material. Consult your site safety staff for guidance.
Respiratory Protection:	Respiratory protective equipment (RPE) may be required for certain laboratory and large-scale manufacturing tasks if potential airborne breathing zone concentrations of substances exceed the relevant exposure limit(s). Workplace risk assessment should be completed before specifying and implementing RPE usage. Potential exposure points and pathways, task duration and frequency, potential employee contact with the substance, and the ability of the substance to be rendered airborne during specific tasks should be evaluated. Initial and ongoing strategies of quantitative exposure measurement should be obtained as required by the workplace risk assessment. All RPE must conform to local and regional specifications for efficacy and performance. Consult your site or corporate health and safety professional for additional guidance.
Eye Protection:	Safety glasses with side shields. Use of goggles or full face protection may be required based on hazard, potential for contact, or level of exposure. Consult your site safety staff for guidance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

FORM:	Liquid
COLOR:	Colorless to light yellow
ODOR:	Odor unknown
ODOR THRESHOLD:	Not determined
pH:	Not determined
BOILING POINT / RANGE:	Not determined
MELTING POINT / RANGE:	Not determined
DECOMPOSITION TEMPERATURE:	Not determined
VAPOR PRESSURE:	Not determined
VAPOR DENSITY:	Not determined
SPECIFIC GRAVITY:	Not determined
SOLUBILITY:	
Water:	Albuterol Sulfate: Soluble Albuterol Base: Soluble in most organic solvents.
PARTITION COEFFICIENT (log Pow):	Not determined

VISCOSITY: Not determined
EVAPORATION RATE: Not determined
FLAMMABILITY DATA:

Flash Point:	> 93.3 deg C (> 200 deg F)
Flammability (solid, gas):	Not determined
UEL:	Not determined
LEL:	Not determined
Autoignition Temperature:	Not determined

SECTION 10. STABILITY AND REACTIVITY

STABILITY/ REACTIVITY:
Stable under conditions specified in Section 7 of this SDS. No hazardous reactions known.

CONDITIONS AND MATERIALS TO AVOID:
Oxidizers. Strong acids and bases. Open flames and high temperatures.

HAZARDOUS DECOMPOSITION PRODUCTS / REACTIONS:
Carbon oxides (COx).

SECTION 11. TOXICOLOGICAL INFORMATION

The information presented below is for the active ingredient(s) in this product.

LIKELY ROUTES OF EXPOSURE:
Skin, eye, inhalation, and ingestion.

ACUTE TOXICITY DATA

PRODUCT / CHEMICAL NAME	EXPOSURE ROUTE	STUDY DESCRIPTION	RESULT
Albuterol Sulfate	Oral	LD50 (rat)	> 2000 mg/kg

INHALATION:
No data available.

ORAL:
Albuterol sulfate: Oral LD50: >2000 mg/kg (rat)
Albuterol Sulfate produced signs of ataxia, clonic convulsions, tail whipping, piloerection, gasping, salivation and shallow respiration at doses of 2000 mg/kg in an acute oral toxicity study in rats.

EYE:
No data available.

SKIN:
No data available.

ASPIRATION:
No data available.

DERMAL AND RESPIRATORY SENSITIZATION:
No data available.

REPEAT DOSE TOXICITY DATA

SUBCHRONIC / CHRONIC TOXICITY:
Albuterol was evaluated for potential cardiotoxic effects following inhalation exposure for 2 weeks in rats, dogs, and monkeys. Doses were multiples of the maximum daily human clinical dose of 15 mcg/kg. Doses ranged from 0.00375 to 37.5 mg/kg in rats, 0.135 to 1.5 mg/kg in monkeys, and 0.075 to 1.35 mg/kg in dogs. No effects of treatment were observed in monkeys. Rats and dogs exhibited tachycardia and transient hypokalemia (heart weights were increased in rats in response to the tachycardia), and slight to mild papillary fibrosis in dogs only. The findings were considered to be consistent with expected effects of the class of compounds to which Albuterol belongs.

Multiple subchronic and chronic oral toxicity studies ranging from 15 weeks to 18 months have been conducted with albuterol and albuterol sulfate in rats and dogs. In rats, dosages ranged from 0.05 to 50 mg/kg albuterol or albuterol sulfate. The pituitaries were the common target organs affected in the studies. Other effects noted included changes in food consumption, body weight, hematology, clinical chemistry or urinalysis parameters, increased organ weights (liver, pituitaries, Harderian glands), and/or hypertrophy of the Harderian glands. In dogs, dosages ranged from 0.05 to 12.5 mg/kg albuterol or albuterol sulfate. Common treatment-related effects included peripheral vasodilation and tachycardia at the highest dosages tested (12.5 mg/kg). Other effects included changes in food consumption, body weight, EEG, hematology, clinical and urinalysis parameters, and ophthalmoscopy. In the 1-year study, it was also noted that the increased heart rates were followed by a reduction of heart rate.

REPRODUCTIVE / DEVELOPMENTAL TOXICITY:
Albuterol was teratogenic in mice and rabbits when given doses corresponding to 14 and 2800 times the maximum human inhalation therapeutic inhalation dose; however, in other studies, no adverse fetal effects were noted in rabbits or rats administered oral dosages of albuterol or albuterol sulfate.

Albuterol was given to male and female rats at dosages ranging from 2 to 50 mg/kg/day prior to mating, and to females throughout gestation. There were no adverse effects observed with regard to mating or gestational parameters. Survival of pups in the 50 mg/kg/day group was significantly reduced. This was attributed to the effects of albuterol on maternal behavior during weaning. There were no significant differences in the incidences of abnormalities in pups from treated dams when compared to the control group pups.

Multiple studies were conducted to assess the developmental and reproductive toxicity of albuterol and/or albuterol sulfate in pregnant rats and rabbits. Doses ranged from 0.5 to 100 mg/kg/day and were administered during and/or after gestation. No adverse effects on reproduction, or fetal or pup development were observed. Adverse effects noted in fetuses or pups were minimal and sporadic, and could not be directly attributed to the treatment of albuterol or albuterol sulfate.

No adverse developmental effects were observed in rats and rabbits administered albuterol sulfate during gestaion in nose-only inhalation studies.

MUTAGENICITY / GENOTOXICITY:
Albuterol was negative in a bacterial mutagenicity assay, and did not cause chromosomal damage in human lymphocytes or in mouse bone marrow cells.

CARCINOGENICITY:
Albuterol has been evaluated in 2-year carcinogenicity studies in rats and mice. In mice there was no evidence of carcinogenciity. In rats, benign tumors of the mesovarian ligament were reported at doses of 2, 10 or 50 mg/kg/day. In a 44 week post dosing recovery period, there was neither regression nor progression of these tumors. Formation of these tumors was blocked by coadministration of propanalol, a beta-blocker. This effect has been shown to be unique to rats and common with other beta agonists.

Classification according to EC Directive 1272/2008:
Resp. Sens. 1 (H334).

Classification criteria have not been met for the following endpoints due to lack of data, inconclusive data, technical impossibility to obtain the data, or data which are conclusive although insufficient for classification (available information to support classification criteria is given in Section 4 or Section 11 of this data sheet):
Inhalation toxicity. Dermal toxicity. Eye damage or irritation. Oral toxicity. Skin sensitization. Skin corrosion or irritation. Respiratory sensitization. Mutagenicity. Carcinogenicity. Reproductive toxicity. Specific target organ toxicity (STOT) - Single Exposure. Aspiration hazard. Specific target organ toxicity (STOT) - Repeated Exposure.

See Section 4 for human health symptoms and effects.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA

There are no ecotoxicity data available for these products or their components.

PERSISTENCE AND DEGRADABILITY

Biodegradation Results: No data available.

BIOACCUMULATIVE POTENTIAL

Partition Coefficient (log Pow) Results: No data available.

MOBILITY IN SOIL

Soil Adsorption/Desorption Results: No data available.

PBT and vPvB ASSESSMENT

This substance has not been assessed.

OTHER ADVERSE EFFECTS

ENVIRONMENTAL FATE AND EFFECTS: No data available.

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

MATERIAL WASTE:
Disposal must be in accordance with applicable federal, state/provincial, and/or local regulations. Incineration is the preferred method of disposal, when appropriate. Operations that involve the crushing or shredding of waste materials or returned goods must be handled to meet the recommended exposure limit(s).

PACKAGING AND CONTAINERS:
Disposal must be in accordance with applicable federal, state/provincial, and/or local regulations.

SECTION 14. TRANSPORT INFORMATION

This material is not subject to the transportation regulations of DOT, IATA, IMO, and the ADR.

SECTION 15. REGULATORY INFORMATION

SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

Germany, Water Endangering Classes (WGK)

INGREDIENT	Annex 1	Annex 2 - Water Hazard Classes	Annex 3
Albuterol Sulfate	Not listed.	Not listed.	Not listed.
Benzalkonium Chloride	Not listed.	Not listed.	WGK 3

Ozone Depleting Substance(s)

INGREDIENT	Listing
Albuterol Sulfate	Not listed.
Benzalkonium Chloride	Not listed.

Persistent Organic Pollutants

INGREDIENT	Listing
Albuterol Sulfate	Not listed.
Benzalkonium Chloride	Not listed.

EU Import and Export Restrictions

INGREDIENT	Requires PIC Notification	Requires Export Notification	Export Ban
Albuterol Sulfate	Not listed.	Not listed.	Not listed.
Benzalkonium Chloride	Not listed.	Not listed.	Not listed.

SEVESO II EU Directive

INGREDIENT	Listing
Albuterol Sulfate	Not listed.
Benzalkonium Chloride	Not listed.

REACH

INGREDIENT	Subject to Authorization	Candidate List for Authorization	Potential Substances of High Concern	Restrictions
Albuterol Sulfate	Not listed.	Not listed.	Not listed.	Not listed.
Benzalkonium Chloride	Not listed.	Not listed.	Not listed.	Not listed.

CHEMICAL SAFETY ASSESSMENT

A Chemical Safety Assessment has not been done.

SECTION 16. OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequence of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

The brand-names or trademarks indicated by CAPITAL LETTERS in this [M]SDS are the property of, licensed to, promoted or distributed by Merck & Co., Inc., its subsidiaries or related companies.

DEPARTMENT ISSUING SDS:

Global Safety & the Environment
Merck & Co., Inc.
One Merck Drive
Whitehouse Station, NJ 08889

MERCK SDS HELPLINE:

+1 (908) 473-3371 (Worldwide)
Monday to Friday, 9am to 5pm (US Eastern Time)

SIGNIFICANT CHANGES (EU SUBFORMAT):

New regional format

DEFINITIONS (referred to under Sections 2 and 3):

CLP Classifications:	• Resp. Sens. 1 (H334) • Acute Tox. 3 (H331) - Toxic if inhaled. • Resp. Sens. 1 (H334) - May cause allergy or asthma symptoms or breathing difficulties if inhaled. • STOT Rep. 1 (H372) - Causes damage to organs through prolonged or repeated exposure. • Acute Tox. 4 (H312) - Harmful in contact with skin. • Acute Tox. 4 (H302) - Harmful if swallowed. • Skin Corr. 1B (H314) - Causes severe skin burns and eye damage • Aquatic Acute 1 (H400) - Very toxic to aquatic life.	• May cause allergy or asthma symptoms or breathing difficulties if inhaled
Risk Phrases:	• Based on available data, this preparation does not meet the criteria to be classified as hazardous according to EC DIrective 1999/45/EC. • R42 - May cause sensitization by inhalation. • R35 - Causes severe burns. • R50 - Very toxic to aquatic organisms. • R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation. • R21/22 - Harmful in contact with skin and if swallowed.	

GLOSSARY:
IARC - International Agency for Research on Cancer, IARC Group 1 or 2A.
NTP - National Toxicology Program
ACGIH - American Conference of Governmental Industrial Hygienists
ADR - International Carriage of Dangerous Goods by Road
API - Active Pharmaceutical Ingredient
CAS - Chemical Abstract Service
CLP - Classification, Labeling and Packaging
DOT - Department of Transportation
EC - European Council
ETAC - Estimated Target Airborne Concentration
GHS - Globally Harmonized System
HEPA - High Efficiency Particulate Arresting
HHC - Health Hazard Category
HPA - Hypothalamic Pituitary Adrenal
IATA - International Air Transport Association
IMO - International Maritime Organization
IP - Intraperitoneal Injection
LD50 - Lethal Dose, 50%
LC50 - Lethal Concentration, 50%
LOEL - Lowest Observed Effect Level
NEL - No Effect Level
NOAEL - No Adverse Effect Level
NOEL - No Observe Effect Level
OEG - Occupational Exposure Guideline
PBT - Persistent BioaccumulativeToxic
PG - Packing Group
PIC - Prior Informed Consent
PPE - Personal Protective Equipment
REACH - Registration, Evaluation, Authorization and Restriction of Chemical Substances
RPE - Respiratory Protective Equipment
SCBA - Self Contained Breathing Apparatus
STOT - Specific Target Organ Toxicity
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average
UN - United Nations
vPvB - Very Persistent andVery Bioaccumulative
WGK - Water Hazard Class (Germany)