

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Exnovirin

Print date: 11.04.2012

Product code: 54

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product Identifier

Exnovirin

Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Renovirin - Cyanide detoxification

Details of the supplier of the safety data sheet

Company name:

BULLNHEIMER & CO

Street:

GmbH & Co KG

Place:

Telephone:

Im Tal 12 · D-86179 Augsburg · Germany

e-mail: E-Mail: info@bullnheimer.de

P.O. Box 21 11 48 · D-86171 Augsburg

Internet: [Internet: http://www.bullnheimer.de](http://www.bullnheimer.de)

Phone: +49 (0)821/8 08 50-0

Fax: +49 (0)821/8 08 50-90/-92/-94

Emergency telephone:

0049 6131 19240 Counseling center for poisoning

SECTION 2: Hazards Identification

Classification of the substance or mixture

Indications of danger : Corrosive, Dangerous for the environment

R-phrases:

Causes burns.

Very toxic to aquatic organisms.

GHS classification

Hazard categories:

Skin corrosion/irritation: Skin Corr. 1B

Serious eye damage/eye irritation: Eye Dam. 1

Hazardous to the aquatic environment: Aquatic Acute 1

Hazard Statements:

Causes severe skin burns and eye damage.

Very toxic to aquatic life.

Label elements

Signal word:

Danger

Pictograms:

GHS05-GHS09



Hazardous components which must be listed on the label
sodium hypochlorite, solution 13-16 % Cl active

Hazard statements

H314

Causes severe skin burns and eye damage.

H400

Very toxic to aquatic life.

Precautionary statements

P101

If medical advice is needed, have product container or label at hand.

P102

Keep out of reach of children.

P260

Do not breathe dust/fume/gas/mist/vapours/spray.

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- P264 Wash hands thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P391 Collect spillage.
P405 Store locked up.

Special labelling of certain mixtures

- EUH031 Contact with acids liberates toxic gas.
EUH206 Warning! Do not use together with other products. May release dangerous gases (chlorine).

SECTION 3: Composition/information on ingredients

Mixtures

Hazardous components

EC No	Chemical name	Quantity
CAS No	Classification	
Index No	GHS classification	
REACH No		
231-668-3	sodium hypochlorite, solution 13-16 % Cl active	42 %
7681-52-9	C, N R34-31-50	
017-011-00-1	Skin Corr. 1B, Aquatic Acute 1; H314 H400	

Full text of R- and H-phrases: see section 16.

SECTION 4: First aid measures

Description of first aid measures

General information

Immediately remove any wetted clothing, shoes or stockings. Self-protection of the first aider.
Wash contaminated clothing prior to re-use.
In case of accident or if you feel unwell, seek medical advice immediately (show safety data sheet if possible).

After inhalation

If victim is at risk of losing consciousness, position and transport on their side.
Move victim to fresh air. Put victim at rest and keep warm.
Provide fresh air.
Get immediate medical advice/attention.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap.
Immediately get medical attention.

After contact with eyes

In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.

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After ingestion

Rinse mouth immediately and drink large quantities of water.

If swallowed, do not induce vomiting: seek medical advice immediately and show this container label.

Indication of any immediate medical attention and special treatment needed

Focus of attention is the local effect of the solution, these acts from 5 % irritating, from ca. 10 % corrosive to the dermal tissue. By adding acid, chlorine gas can be released. -Symptoms of acute poisoning: Eyes: Burn, pain, depending on the concentration superficial epithelial damage to the cornea up to serious corrosion. Degree of damage and reversibility highly dependent on the reaction time to the onset of rinsing! Skin: Superficial irritation up to corrosive damage.

Inhalation: Preferred by aerosol irritation/injury in the nasal-throat-area. After massive inhalation and always after the release of chlorine gas: Risk of Laryngospasmus, glottisödem, bronchospasm, Tracheoband roncchitis, pulmonary edema, Pneumonie, (nach Latenz), possibly sudden cardiac death.

Ingestion: Burn/pain in the mouth, throat, oesophagus, stomach, nausea, vomiting, (aspiration hazard!), risk of corrosive damage of the contacted mucous membranes. (Ulceration, perforation, stricture in oesophagus /stomach); when aspiration serious lung damage as a result of massive corrosion also acute cardiovascular reaction (collapse, shock); after very large doses maybe systemic effect.

Absorption: Possibly hypernatraemia, hyperchloraemia acidose, probably less as a result of absorption as a result of massive tissue damage; disorder of the central nervous system (lethargy, loss of consciousness up to coma), cardiovascular reaction, maybe renal dysfunctions. -Instruction on the first medical aid: After impact on the eye the first aid (thorough rinsing preferably with physiological sodium chloride solution, possibly pain relief) must following as soon as possible a further ophthalmological treatment. Thoroughly rinse contaminated skin with water. Irritated areas can be treated with a corticoid containing dermatic agent. In the case of large-area skin damage, the injured should be transported for further treatment to a hospital. After inhalation of fine aerosol solution or released chlorine gas the application of glucocorticoides and an oxygen administration is indexed. If necessary any other measures in prevention against pulmonary edema.

If bronchospasm additional an administration of Broncholytika. In severe cases intubation and artificial respiration may be necessary, cardiovascular support, always as fast as possible transportation of the injured to the hospital for further diagnosis/treatment. In the case of oral intake only the situation and clinical diagnostic findings can decide on the required measures. If signs of perforation certainly are missing an immediate gastric lavage (in intubation) is considered. But it seems only be useful if large amounts of solution have been incorporated. As well as after inhalation a glucocorticoid administration may be required to prevent the formation of a glottisödem or/and lung damage (compare measures after inhalation). Further treatment is symptomatically. In any suspicion of intoxication clarification under stationary conditions must be done.

In the foreground are control of cardiovascular, central nervous system and respiratory function, diagnosis (endoscopy) and treatment of etching damage and control of the acid-bases balance, of blood count (in particular of the leucocytes) and renal function.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

Water spray. Foam. Carbon dioxide. Extinguishing powder.

Special hazards arising from the substance or mixture

In concentrated form the solution can release oxygen and act as oxidizing. During thermal decomposition different, aggressive acting gases were free, such as chlorine gas, chlorine oxide and hydrogen chloride. In case of fire drill is to be regarded on the alkaline reacting Hypochlorite solution as well as on the acid solidified product. The product is in a dry condition oxidizing. Vapour and/or decomposition product are irritating and/or toxic. The product can react as oxidizer.

Advice for firefighters

Protective respiration apparatus not using surrounding air (breathing apparatus) (DIN EN 133).

Wear chemical resistant suit.

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Additional information

Cool endangered containers with water spray jet.
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Clear endangered area, warn concerned area.
For cleaning up of the endangered situation may the danger zone only be entered with adequate protection methods.
Wear breath-, eye-, hand- and body protection (see chapter personal protection methods).

Environmental precautions

Avoid invasion into inshore waters, canalization, ground earth. Drinking water danger when invasion of a bigger amount into the underground and inshore waters. Environmental hazard possible by release of bigger amounts of the substance in the surrounding atmosphere. Inform authorities. Polluted textiles/cleaning rag made of natural fibre can be flammable (for example out of clean wool or clean cotton) and should not be used respectively should be disposed safely.

Methods and material for containment and cleaning up

Absorb buried liquids with universal binding agent (for example diatomaceous earth, vermiculite, grit) and dispose specified. Do not attempt to neutralize in no case the coated liquid with acid. Pump down bigger amounts.
Subsequent ventilate the room and clean contaminated subjects and floor.

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling

In area of operation may no food and luxury food be absorbed. For this function are adequate areas to be constructed. Avoid contact with skin. Avoid absolutely dry of the substances or his solutions on the skin. After contact with skin cleaning of skin is necessary. Avoid contact with eyes. After contact with eyes conduct a eyes flushing. Avoid breathing of vapours or mist. Avoid contact with clothing. Change polluted working clothing and clean efficiently. Rinse clothing before cleaning. Separated storage possibilities for clothing and working clothing should be available, if danger of pollution is to be expected.

Advice on protection against fire and explosion

Substance is not flammable. Balance fire and explosion protection methods on the flammable substances in the area. Aqueous solution can yet in concentrated form by contact with substances like hydro chloride acid and hydrogen peroxide separate oxygen and assist the burning of flammable substances.

Fire fighting-equipments are to be provided.
Check electric installation regularly because of increased corrosion danger.

Further information on handling

General Precautions for safe handling of chemicals.
Provide for sufficient ventilation and punctiform suction at critical points.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place.
Protect against sunlight.

Advice on storage compatibility

The clustering with the following substances is forbidden: -Medicine, food and forage including additives. -Contagious dangerous, radioactive and explosive substances -Heavy oxidizing effective substance of storage class 5.1 A. -Organic peroxides and self decomposable substances The clustering with the following substances is only allowed under certain conditions (details see TRGS

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510): -Other explosive dangerous substances of storage class 4.1A. -Self flammable substances
-Substances, which develop with contact of water flammable gases. -Ammonium nitrate and
ammonium nitrate containing preparations. The substance should not be stored with substances, with
which dangerous chemical reactions are possible.

SECTION 8: Exposure controls/personal protection

Control parameters

Exposure controls

Protective and hygiene measures

General Precautions for safe handling of chemicals. When using do not eat, drink or smoke. Wash hands before breaks and at the end of work.

Respiratory protection

In exceptional circumstances wearing of respiratory equipment is needed. Details to the adoption conditions and maximum adoption concentrations take from the rules for the adoption of respiratory equipments (BGR 190).

Hand protection

Use protective gloves. The material of the gloves should be enough tight and firm against the used substance. Check tightness before use. Preclean gloves before extraction, afterwards store good cooled. Consider skin care.

Suitable are gloves out of following materials (breakthrough time \geq 8 hours): Natural rubber-NR (0,5mm) (use non powdered and allergy free products) Polychloropren – CR (0,5mm) Nitrile rubber – NR (0,35mm) Butyl rubber – butyl (0,5mm) Fluor rubber – FKM (0,4mm) Polyvinyl chloride – PVC (0,5mm)

Eye protection

Adequate eye protection must be wearied.
Wear protective glasses.

Skin protection

The protection clothing should be alkali-resistant.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state:	flüssig
Colour:	gelblich
Odour:	nach Chlor

pH-Value (at 20 °C):	10 g/l < 11
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Changes in the physical state

Boiling point:	ca. 90 °C
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Zersetzungstemperatur::	ca. 35 °C
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Flash point:	n.a.
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Density (at 20 °C):	1,06 g/cm ³
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Water solubility:	unendlich
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Viscosity / dynamic: (at 20 °C)	<10 mPa·s
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Test method

SECTION 10: Stability and reactivity

Chemical stability

Stable under normal temperature and compression conditions. Light sensitive.

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Possibility of hazardous reactions

By reaction of acids occurs chlorine.

Conditions to avoid

Sunlight, heat temperature below 40°C.

Incompatible materials

Metals, reducing agent, heavy acids, amines, ammoniac, acids (organic-, for example acetic acid, benzoic acid, formic acid, methanoic acid, oxalic acid), methanole, ammonium salts.

Hazardous decomposition products

Hydrogen chloride, chlorine, sodium oxide.

SECTION 11: Toxicological information

Information on toxicological effects

Toxicocinetics, metabolism and distribution

In individual cases allergic reactions are described by human beings towards NaOCl-solutions (see chronic toxicity). In a standardized test on probands and in 3 from each other independent testing on guinea pigs a skin sensitizing effect was not yet verifiable. The dermal toxicity of a 5,25% NaOCl-solution was in a animal experiment very low (LD50 > 2g/kg KG). By inhalation the aerosol of a NaOCl-solution can irritate the airways. In a test on mice with aerosolised 10% solution a RD50-value of 4,11ppm (50% reduction of the breath frequency) was determined as measure for the irritation effect.

The oral toxicity is affected due to the local effect of the hypochlorite less than the dose of the concentration of the solution. In an animal experiment the toxicity was low (LD50 for 5,25% NaClO₂ about 682mg Cl/kg KG). Despite this the danger exists that in case of aspiration also smaller amounts of life threatening lung damages can be caused. Through higher concentrated NaOCl solutions or solutions with high caustic soda additive life threatening corrosivity are to be feared in the range of oesophagus and stomach. As systemic effects are in two cases after ingestion of 1 litre 5% NaOCl solution increased level of sodium and Hyperchlorämische acidosis is to be proved.

Specific effects in experiment on an animal

LD50 (orale, mouse): 5800mg/kg

Irritation and corrosivity

After inhalation: Irritation of the mucous membrane
After eye contact: Irritation effect; no sensitizing effect known
After skin contact: Irritation effect
After swallowing: Irritation effect

Carcinogenic/mutagenic/toxic effects for reproduction

The are no data available for classification of this substance concerning his Karzogenität out of EPA, IAR, NTP, OSHA or ACGIH.

SECTION 12: Ecological information

Toxicity

Fisch: Rainbow trout: 0.07 mg/l; 48h;
Fisch: Fathead Minnow: 5.9 mg/l; 96h;

Mobility in soil

Let not get undiluted into inshore waters or canalization. In inshore waters also toxic for fishes and water organisms. Toxicity through pH value shift and release of chlorine.

SECTION 13: Disposal considerations

Waste treatment methods

Waste disposal number of waste from residues/unused products

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110113 WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY; wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising); degreasing wastes containing dangerous substances
Classified as hazardous waste.

Contaminated packaging

Contaminated packing must be completely emptied and can be re-used following appropriate cleaning.

SECTION 14: Transport information

Land transport (ADR/RID)

UN number: UN1791
UN proper shipping name: HYPOCHLORITE SOLUTION ca. 8%ig
Transport hazard class(es): 8
Packing group: III
Hazard label: 8



Classification code: C9
Special Provisions: 521
Limited quantity: 5 L
Transport category: 3
Hazard No: 80
Tunnel restriction code: E

Other applicable information (land transport)

E1

Inland waterways transport

UN number: UN1791
UN proper shipping name: HYPOCHLORITE SOLUTION ca. 8%
Transport hazard class(es): 8
Packing group: III
Hazard label: 8



Classification code: C9
Special Provisions: 521
Limited quantity: 5 L

Other applicable information (inland waterways transport)

E1

Marine transport

UN number: UN1791
UN proper shipping name: HYPOCHLORITE SOLUTION ca. 8%
Transport hazard class(es): 8
Packing group: III

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Hazard label: 8



Special Provisions: 223
Limited quantity: 5 L
EmS: F-A, S-B

Other applicable information (marine transport)
E1

Air transport

UN/ID number: UN1791
UN proper shipping name: HYPOCHLORITE SOLUTION
Transport hazard class(es): 8
Packing group: III
Hazard label: 8



Special Provisions: A3 A803
Limited quantity Passenger: 1 L
IATA-packing instructions - Passenger: 852
IATA-max. quantity - Passenger: 5 L
IATA-packing instructions - Cargo: 856
IATA-max. quantity - Cargo: 60 L

Other applicable information (air transport)
E1
: Y841

Environmental hazards

Dangerous for the environment: yes



SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulatory information

Employment restrictions: Observe employment restrictions for young people. Observe employment restrictions for child bearing mothers and nursing. Observe employment restrictions for women of child-bearing age.
Water contaminating class (D): 2 - water contaminating

SECTION 16: Other information

Full text of R-phrases referred to under sections 2 and 3

31 Contact with acids liberates toxic gas.
34 Causes burns.
50 Very toxic to aquatic organisms.

Full text of H-Statements referred to under sections 2 and 3

H314 Causes severe skin burns and eye damage.

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H400 Very toxic to aquatic life.

Further Information

This information is based on the present state of knowledge, but they do not constitute a guarantee of product properties and establishes no contract legal rights. Existing laws and regulations are followed by the recipient of our products on their own responsibility. This MSDS contains only safety-related information and does not replace any information or product specifications.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)



E-Mail: info@bullnheimer.de
Internet: <http://www.bullnheimer.de>



BULLNHEIMER & CO

GmbH & Co KG

Im Tal 12 · D-86179 Augsburg · Germany
P.O. Box 21 11 48 · D-86171 Augsburg
Phone: +49 (0)821/8 08 50-0
Fax: +49 (0)821/8 08 50-90/-92/-94