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

Product Identifier

Material Name: Nolvasan S

Trade Name: NOLVASAN® Synonyms: Nolvasan S Solution

Chemical Family: Mixture

Registration Number: EPA Reg. No. 1007-100

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Intended Use: Veterinary product used as disinfectant

Restrictions on Use: Not for human use

Details of the Supplier of the Safety Data Sheet

Zoetis Inc.

100 Campus Drive, P.O. Box 651

Florham Park, New Jersey 07932 (USA)

Parks Manual in Prince and Park (USA)

20etis Belgium S.A.

Mercuriusstraat 20
1930 Zaventem

Rocky Mountain Poison and Drug Center Phone: 1-866-531-8896 Belgium

Product Support/Technical Services Phone: 1-800-366-5288

Emergency telephone number: Emergency telephone number:

CHEMTREC (24 hours): 1-800-424-9300 International CHEMTREC (24 hours): +1-703-527-3887

Contact E-Mail: VMIPSrecords@zoetis.com

2. HAZARDS IDENTIFICATION

Appearance: Clear blue liquid

Classification of the Substance or Mixture

GHS - Classification

Acute Toxicity - Dusts and Mists: Category 4 Serious Eye Damage/Eye Irritation: Category 2A Acute aquatic toxicity: Category 2 Chronic aquatic toxicity: Category 2

Chronic aquatic toxicity: Categor Flammable liquids- Category 3

Label Elements

Signal Word: Warning

Hazard Statements: H226 - Flammable liquid and vapor

H332 - Harmful if inhaled

H319 - Causes serious eye irritation

H411 - Toxic to aquatic life with long lasting effects

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Precautionary Statements: P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P240 - Ground/Bond container and receiving equipment

P241 - Use explosion-proof electrical/ventilating/lighting/equipment

P242 - Use only non-sparking tools

P243 - Take precautionary measures against static discharge

P233 - Keep container tightly closed

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P271 - Use only outdoors or in a well-ventilated area P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P264 - Wash hands thoroughly after handling

P273 - Avoid release to the environment

P312 - Call a POISON CENTRE/doctor/physician if you feel unwell

P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

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

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water/shower

P391 - Collect spillage P403 + P235 - Store in a well-ventilated place. Keep cool

P501 - Dispose of contents/container in accordance with all local and national regulations



Other Hazards

Short Term:

Can cause eye irritation . Signs and symptoms might include redness, swelling, blurred vision or pain. May cause slight skin irritation. Signs and symptoms might include skin rash, itching, redness or swelling. May cause respiratory tract irritation. Vapors may cause drowsiness and dizziness. Individuals sensitive to this chemical or other materials in its chemical class may develop allergic reactions.

Long Term: **Australian Hazard Classification** (NOHSC):

May cause effects on liver and kidneys through prolonged or repeated exposure.

Hazardous Substance. Dangerous Goods.

Note:

This document has been prepared in accordance with standards for workplace safety, which requires the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warning included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous				
Ingredient	CAS Number	EU	GHS	%
_		EINECS/ELINCS	Classification	
		l ist		

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3. COMPOSITION/INFORMATION ON INGREDIENTS Chlorhexidine acetate 56-95-1 200-302-4 Acute Tox. 4 2 (H302)Acute Tox.2(H330) Eye Irrit.2A (H319) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)67-63-0 200-661-7 STOT SE 3 (H336) Isopropyl alcohol ca. 8 Flam. Liq. 2 (H225) Eye Irrit. 2A (H319)

Additional Information: Ingredient(s) indicated as hazardous have been assessed under standards for workplace

safety. In accordance with 29 CFR 1910.1200, the exact percentage composition of this

mixture has been withheld as a trade secret.

For the full text of the CLP/GHS abbreviations mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Description of First Aid Measures

Eye Contact: Flush with water while holding eyelids open for at least 15 minutes. Seek medical attention

immediately.

Skin Contact: Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek

medical attention.

Ingestion: Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not

induce vomiting unless directed by medical personnel. Seek medical attention immediately.

Inhalation: Remove to fresh air and keep patient at rest. Seek medical attention immediately.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms and Effects of For information on potential signs and symptoms of exposure, See Section 2 - Hazards

Exposure: Identification and/or Section 11 - Toxicological Information.

Medical Conditions None known

Aggravated by Exposure:

Indication of the Immediate Medical Attention and Special Treatment Needed

Notes to Physician: None

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Extinguish fires with CO2, extinguishing powder or foam.

Special Hazards Arising from the Substance or Mixture

Hazardous Combustion Formation of toxic gases is possible during heating or fire. May include oxides of carbon

Products: nitrogen and products of chlorine

Fire / Explosion Hazards: Flammable liquid and vapor . Vapors will form flammable or explosive mixtures with air at room

temperature. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Fine particles (such as dust and mists) may fuel fires/explosions.

Advice for Fire-Fighters

During all fire fighting activities, wear appropriate protective equipment, including self-contained breathing apparatus. Use spark-proof tools and explosion-proof equipment

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6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Ensure adequate ventilation. Eliminate all sources of ignition and ventilate area using explosion-proof equipment. Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

Environmental Precautions

Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

Methods and Material for Containment and Cleaning Up

Measures for Cleaning /

Collecting:

Contain the source of the spill if it is safe to do so. Eliminate possible ignition sources (e.g., heat, sparks, flame, impact, friction, electricity), and follow appropriate grounding procedures. Use non-combustible absorbent material to wipe up spill and place in a sealed container for disposal. Clean contaminated surface thoroughly. Prevent discharge to drains.

Additional Consideration for

Large Spills:

Non-essential personnel should be evacuated from affected area. Report emergency situations immediately. Clean up operations should only be undertaken by trained personnel. Contain the source of the spill or leak and shut off all electrical equipment if it is safe to do so. Eliminate possible ignition sources (e.g., heat, sparks, flame, impact, friction, electricity), and follow appropriate grounding procedures. Collect spill with a non-combustible absorbent material and transfer to labeled container for disposal. Clean spill area thoroughly. Prevent discharge to drains. Prevent runoff from entering waterways or sewers.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Flammable liquid and vapor- keep away from ignition sources and clean up spills promptly. Eliminate possible ignition sources (e.g., heat, sparks, flame, impact, friction, electricity), and follow appropriate grounding and bonding procedures. Avoid contact with eyes, skin, and clothing. Use appropriate personal protective equipment. Wash thoroughly after handling. Take precautionary measures against static discharges. Use with adequate ventilation. Avoid breathing vapor or mist. Releases to the environment should be avoided. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions: Keep in a cool, well-ventilated place. Keep away from heat, sparks, flame, and other sources of

ignition. Store away from direct sunlight.

Incompatible Materials: Acids, bases, and oxidizers

Specific end use(s): No data available

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Refer to available public information for specific member state Occupational Exposure Limits.

Isopropyl alcohol

ACGIH Threshold Limit Value (TWA)

ACGIH Threshold Limit Value (STEL)

400 ppm

ACGIH - Biological Exposure Limit:

40 mg/L

Australia STEL

500 ppm

1230 mg/m³

Australia TWA

400 ppm

400 ppm 983 mg/m³

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8. EXPOSURE CONTROLS	/ PERSU
Austria OEL - MAKs	200 ppm
- · · · · · ·	500 mg/m ³
Belgium OEL - TWA	200 ppm
Dulmaria OFI TWA	500 mg/m ³
Bulgaria OEL - TWA	980.0 mg/m ³
Czech Republic OEL - TWA Denmark OEL - TWA	500 mg/m ³
Denmark OEL - TWA	200 ppm 490 mg/m ³
Estonia OEL - TWA	150 ppm
Estolia GEE - TWA	350 mg/m ³
Finland OEL - TWA	200 ppm
	500 mg/m ³
Germany - TRGS 900 - TWAs	200 ppm
•	500 mg/m ³
Germany (DFG) - MAK	200 ppm
	500 mg/m ³
Germany - Biological Exposure Limit:	25 mg/L
Greece OEL - TWA	400 ppm
	980 mg/m ³
Hungary OEL - TWA	500 mg/m ³
Ireland OEL - TWAs	200 ppm
Japan - OELs - Ceilings	400 ppm
	980 mg/m ³
Latvia OEL - TWA	350 mg/m ³
Lithuania OEL - TWA	150 ppm 350 mg/m ³
OSHA - Final PELS - TWAs:	400 ppm
OSHA - FIIIdi PELS - TWAS.	980 mg/m ³
Poland OEL - TWA	900 mg/m ³
Portugal OEL - TWA	200 ppm
Romania OEL - TWA	81 ppm
	200 mg/m ³
Romania - Biological Exposure Limit:	50 mg/L
Slovakia OEL - TWA	200 ppm
	500 mg/m ³
Slovenia OEL - TWA	200 ppm
	500 mg/m ³
Spain OEL - TWA	200 ppm
	500 mg/m ³
Spain - Biological Exposure Limit:	40 mg/L
Sweden OEL - TWAs	150 ppm
Switzerland OEL TWAs	350 mg/m ³
Switzerland OEL -TWAs	200 ppm 500 mg/m ³
	555 mg/m

The purpose of the Occupational Exposure Band (OEB) classification system is to separate substances into different Hazard categories when the available data are sufficient to do so, but inadequate to establish an Occupational Exposure Limit (OEL). The OEB given is based upon an analysis of all currently available data; as such, this value may be subject to revision when new information becomes available.

Chlorhexidine acetate

Zoetis OEB OEB 4 (control exposure to the range of 1ug/m³ to <10ug/m³)

Exposure Controls

ZT00059

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Engineering controls should be used as the primary means to control exposures. Keep air

contamination levels below the exposure limits or within the OEB range listed above in this

section.

Personal Protective

Equipment:

Refer to applicable national standards and regulations in the selection and use of personal

protective equipment (PPE).

Hands: Impervious gloves are recommended if skin contact with drug product is possible and for bulk

processing operations.

Eyes: Wear safety glasses or goggles if eye contact is possible.

Skin: Impervious protective clothing is recommended if skin contact with drug product is possible and

for bulk processing operations.

Respiratory protection: Whenever air contamination (mist, vapor or odor) is generated, respiratory protection is

recommended as a precaution to minimize exposure. If airborne exposures are within or exceed the Occupational Exposure Band (OEB) range, wear an appropriate respirator with a protection factor sufficient to control exposures to the bottom of the OEB range. If the

applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with

a protection factor sufficient to control exposures to below the OEL.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid Color: Blue

Odor: No data available. Odor Threshold: No data available.

Molecular Formula: Mixture Molecular Weight: Mixture

Solvent Solubility: No data available

Water Solubility: Soluble

pH: No data available.

Melting/Freezing Point (°C): No data available

Boiling Point (°C): No data available.

Partition Coefficient: (Method, pH, Endpoint, Value)

No data available

Decomposition Temperature (°C): No data available.

Evaporation Rate (Gram/s): No data available

Vapor Pressure (kPa): 4.4 kPa / 33 mm Hg at 22C

Vapor Density (g/ml): 2.07 Relative Density: 0.98

Viscosity: No data available

Flammablity:

Autoignition Temperature (Solid) (°C):No data availableFlammability (Solids):No data availableFlash Point (Liquid) (°C):39.7°C / 103.5°FUpper Explosive Limits (Liquid) (% by Vol.):No data availableLower Explosive Limits (Liquid) (% by Vol.):No data available

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical Stability: Stable under normal conditions of use.

Possibility of Hazardous Reactions

Oxidizing Properties: No data available

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10. STABILITY AND REACTIVITY

Conditions to Avoid: Extremes of temperature and direct sunlight. Keep away from heat, spark, flames and all other

sources of ignition. Fine particles (such as mists) may fuel fires/explosions.

Incompatible Materials: Acids, bases, and oxidizers

Hazardous Decomposition

Products:

Toxic fumes of carbon monoxide, carbon dioxide, oxides of nitrogen, hydrogen chloride and

other chlorine-containing compounds may be emitted.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

General Information:

Toxicological properties of the formulation have not been investigated. The information in this section describes the potential hazards of the individual ingredients and the formulation. Routes of exposure: eye contact, skin contact, inhalation

Acute Toxicity: (Species, Route, End Point, Dose)

Chlorhexidine acetate

Mouse Oral LD 50 2000 mg/kg

Rat Oral LD 50 (F) 1180 / (M) 1710 mg/kg Rat Inhalation LC 50 0.10 - 0.46 mg/L Rabbit Dermal LD 50 > 2000 mg/kg

Isopropyl alcohol

Rat Oral LD50 > 2000 mg/kg Mouse Oral LD50 3600 mg/kg Rat Inhalation LC50-8h 16,000 ppm Rabbit Dermal LD50 12800 mg/kg Rat Inhalation LC50 30mg/L

Acute Toxicity Comments:

A greater than symbol (>) indicates that the toxicity endpoint being tested was not achievable

at the highest dose used in the test.

Inhalation Acute Toxicity

May be harmful if inhaled. May cause respiratory tract and mucous membrane irritation. Inhalation of high concentrations or repeated exposure to isopropanol may cause central

nervous system effects such as headache, dizziness and drowsiness.

Irritation / Sensitization: (Study Type, Species, Severity)

Chlorhexidine acetate

Skin Irritation Rabbit Mild Eye Irritation Rabbit Severe

Skin Sensitization - GPMT Guinea Pig Negative

Isopropyl alcohol

Eye Irritation Rabbit Severe Skin Irritation Rabbit Mild

Irritation / Sensitization Comments: May cause eye irritation.

Skin Irritation / Sensitization May cause mild skin irritation.

Repeated Dose Toxicity: (Duration, Species, Route, Dose, End Point, Target Organ)

Chlorhexidine acetate

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11. TOXICOLOGICAL INFORMATION

13 Week(s) Rabbit Dermal 500 mg/kg/day LOAEL Liver, Skin

Isopropyl alcohol

20 Week(s) Rat Inhalation 4000 ppm NOAEL Liver, Central nervous system

104 Week(s) Rat Inhalation 5000 ppm Kidney

Reproduction & Developmental Toxicity: (Study Type, Species, Route, Dose, End Point, Effect(s))

Chlorhexidine acetate

Embryo / Fetal Development Rat Oral 31.25 mg/kg/day LOEL Maternal toxicity

Embryo / Fetal Development Rat Oral 62.5 mg/kg/day NOEL No effects at maximum dose

Isopropyl alcohol

Prenatal & Postnatal Development Rat Inhalation 7,000 ppm LOAEL Maternal toxicity, Fetotoxicity, Embryotoxicity

2 Generation Reproductive Toxicity Rat Oral 1000 mg/kg/day LOAEL Maternal Toxicity, Fetal mortality Prenatal & Postnatal Development Rat Oral 1200 mg/kg/day NOAEL No effects at maximum dose

Genetic Toxicity: (Study Type, Cell Type/Organism, Result)

Chlorhexidine acetate

Mammalian Cell Mutagenicity Mouse Lymphoma Negative

In Vitro Cytogenetics Chinese Hamster Ovary (CHO) cells Negative

In Vivo Micronucleus Rat Hepatocyte Negative

Isopropyl alcohol

Bacterial Mutagenicity (Ames) Salmonella Negative

Mammalian Cell Mutagenicity HGPRT Chinese Hamster Ovary (CHO) cells Negative

In Vitro Sister Chromatid Exchange Negative

Carcinogen Status: None of the components of this formulation are listed as a carcinogen by IARC, NTP or OSHA.

Isopropyl alcohol

IARC: Group 3 (Not Classifiable)

Product Level Toxicity Data

Inhalation ATE (Acute Toxicity 5 mg/l (dusts/mists)

Estimate), calculated
Oral ATE (Acute Toxicity >5000 mg/kg

Estimate), calculated

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12. ECOLOGICAL INFORMATION

Environmental Overview: Environmental properties of the formulation have not been investigated. The following

information is available for the individual ingredients. Releases to the environment should be

avoided.

Toxicity:

Aquatic Toxicity: (Species, Method, End Point, Duration, Result)

Chlorhexidine acetate

Oncorhynchus mykiss (Rainbow Trout) NA LC50 96 Hours 1.9 ppm Lepomis macrochirus (Bluegill Sunfish) N/A LC50 96 Hours 0.6 ppm

Daphnia Magna (Water Flea) N/A EC50 N/A 0.06 mg/L

Terrestrial Toxicity: (Species, Method, End Point, Duration, Result)

Chlorhexidine acetate

Colinus virginianus (Bobwhite Quail) N/A LD50 N/A 2013 mg/kg

Persistence and Degradability: No data available

Bio-accumulative Potential: No data available

Mobility in Soil: No data available

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods: Waste of this product may qualify as a RCRA Hazardous Waste. Status should be confirmed

by testing for RCRA hazardous characteristics (i.e. corrosivity, toxicity, reactivity, or ignitability). Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental

releases. This may include destructive techniques for waste and wastewater.

14. TRANSPORT INFORMATION

Domestically-non-restricted (alcohol content L/T 25%) .

Transport according to the requirements of the appropriate regulatory body.

UN number: UN 1993

UN proper shipping name: Flammable liquid, n.o.s. (contains isopropanol)

Transport hazard class(es): 3 (Flammable liquid)

Packing group:

Environmental Hazard(s): Marine Pollutant **Flash Point (°C):** 39.7°C / 103.5°F

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Marine pollutant requirements apply only to quantities >5 Liters for liquids / >5 Kilograms for solids (per inner package) when shipped as per IMDG or ADR (effective year 2015 or greater) regulations.

IATA / ICAO

IATA UN / ID No: UN 1993

IATA Proper shipping name: Flammable Liquid, n.o.s. (contains isopropanol)

IATA Hazard Class: 3
IATA Packing Group: III

IMDG IMDG

IMDG UN / ID No: UN 1993

IMDG Proper shipping name: Flammable Liquid, n.o.s.

IMDG Technical Shipping Flammable liquid, n.o.s. (contains isopropanol)

Name:

IMDG Hazard Class: 3
IMDG Packing Group: III

Flash Point (°C): 39.7°C / 103.5°F Environmental Hazard(s): Marine Pollutant

ADR/RID

ADR / RID UN / ID No: UN 1993

ADR/RID Proper shipping Flammable Liquid, n.o.s.

name:

ADR / RID Hazard Class: 3
ADR / RID Packing Group: III
ADR / RID Item Number: UN 1993

The interpret of the Packing Research Control of the Packing Research Control of the Packing Research Control of the Packing Research

Environmental Hazard(s): Marine Pollutant

DOT

DOT Proper shipping name: Not regulated

15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

Canada - WHMIS: Classifications

WHMIS hazard class:

Class B, Division 3

Class D, Division 2, and Subdivision B.

This product has been classified in accordance with the hazard criteria of the CPR and the SDS contains all of the information required by the CPR.



Chlorhexidine acetate

CERCLA/SARA 313 Emission reporting

Not Listed
California Proposition 65

Not Listed

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15. REGULATORY INFORMATION

Australia (AICS): Present EU EINECS/ELINCS List 200-302-4

Isopropyl alcohol

CERCLA/SARA 313 Emission reporting
1.0 %
California Proposition 65
Inventory - United States TSCA - Sect. 8(b)
Australia (AICS):
Present
EU EINECS/ELINCS List
200-661-7

16. OTHER INFORMATION

Text of CLP/GHS Classification abbreviations mentioned in Section 3

Acute toxicity, oral-Cat.4; H302 - Harmful if swallowed Acute toxicity, inhalation-Cat.2; H330 - Fatal if inhaled

Serious eye damage/eye irritation-Cat.2A; H319 - Causes serious eye irritation

Hazardous to the aquatic environment, acute toxicity-Cat.1; H400 - Very toxic to aquatic life

Hazardous to the aquatic environment, chronic toxicity-Cat.1; H410 - Very toxic to aquatic life with long lasting effects Specific target organ toxicity, single exposure; Narcotic effects-Cat.3; H336 - May cause drowsiness and dizziness

Flammable liquids-Cat.2; H225 - Highly flammable liquid and vapor

Data Sources: The data contained in this SDS may have been gathered from confidential internal sources,

raw material suppliers, or from the published literature.

Reasons for Revision: Updated Section 11 - Toxicology Information. Updated Section 2 - Hazard Identification.

Updated Section 3 - Composition / Information on Ingredients. Updated Section 14 - Transport

Information.

Prepared by: Toxicology and Hazard Communication

Zoetis Global Risk Management

Zoetis Inc. believes that the information contained in this Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time.

End of Safety Data Sheet
