

NeXtal PACT Suite

Version 2.0

Revision Date 04/02/2020

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SECTION 1. IDENTIFICATION

Product name : NeXtal PACT Suite

Manufacturer or supplier's detailsCompany : NeXtal
6201 Trust Dr
Holland, OH 43528
USA

Telephone : 419-740-6600

E-mail address : www.calibrescientific.comEmergency telephone : CHEMTREC
USA & Canada 1-800-424-9300
Outside USA & Canada (703) 527-3887
Chemtrec ID# 696910**Recommended use of the chemical and restrictions on use**

Recommended use : Laboratory chemicals

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Eye irritation : Category 2A

Carcinogenicity : Category 1B

Reproductive toxicity : Category 1B

Specific target organ
systemic toxicity - single
exposure : Category 3 (Respiratory system)

Acute aquatic toxicity : Category 2

Chronic aquatic toxicity : Category 3



GHS Label element

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Hazard pictograms	:	 
Signal Word	:	Danger
Hazard Statements	:	H319 Causes serious eye irritation. H335 May cause respiratory irritation. H350 May cause cancer. H360 May damage fertility or the unborn child. H401 Toxic to aquatic life. H412 Harmful to aquatic life with long lasting effects.
Precautionary Statements	:	Prevention: P201 Obtain special instructions before use. P280 Wear protective gloves/protective clothing/eye protection/face protection. Response: P308 + P313 IF exposed or concerned: Get medical advice/attention.
Other hazards		None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture	:	Mixture
Substance name	:	NeXtal PACT Suite

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (% w/w)
PEG	25322-68-3	>= 20 - < 30
Magnesium chloride, hexahydrate	7791-18-6	>= 1 - < 10
sodium iodide	7681-82-5	>= 1 - < 10
calcium chloride dihydrate	10035-04-8	>= 1 - < 10
4-Morpholineethanesulfonic acid	145224-94-8	>= 1 - < 10
potassium thiocyanate	333-20-0	>= 1 - < 10
sodium nitrate	7631-99-4	>= 1 - < 10
ammonium chloride	12125-02-9	>= 1 - < 10
sodium fluoride	7681-49-4	>= 0.1 - < 1
Sodium cacodylate trihydrate	6131-99-3	>= 0.1 - < 1
imidazole	288-32-4	>= 0.1 - < 1
boric acid	10043-35-3	>= 0.1 - < 1
zinc chloride	7646-85-7	>= 0.1 - < 1

SECTION 4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.
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If inhaled	: Call a physician or poison control center immediately. If unconscious, place in recovery position and seek medical advice.
In case of skin contact	: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
In case of eye contact	: Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eyes. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	: If accidentally swallowed obtain immediate medical attention. Rinse mouth with water. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	: Causes serious eye irritation. May cause respiratory irritation. May cause cancer. May damage fertility or the unborn child.
Notes to physician	: No information available.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Specific hazards during fire fighting	: Do not allow run-off from firefighting to enter drains or water courses. Exposure to decomposition products may be a hazard to health.
Hazardous combustion products	: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Sulfur oxides Carbon oxides Nitrogen oxides (NOx) potassium oxide Chlorine compounds Magnesium oxides Iodine compounds Hydrogen chloride gas Bromine compounds
Specific extinguishing methods	: In the event of fire and/or explosion do not breathe fumes.
Special protective equipment for fire-fighters	: Wear self-contained breathing apparatus for firefighting if necessary.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Avoid breathing dust/fumes/gas/mist/vapors/spray.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
PEG	25322-68-3	TWA	10 mg/m ³	US WEEL
		TWA (aerosol)	10 mg/m ³	US WEEL
sodium iodide	7681-82-5	TWA (Inhalable fraction and vapor)	0.01 mg/m ³	ACGIH
		TWA (Inhalable fraction and vapor)	0.01 ppm (iodine)	ACGIH

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ammonium chloride	12125-02-9	TWA	10 mg/m3	ACGIH
		STEL	20 mg/m3	ACGIH
		TWA (Fumes)	10 mg/m3	NIOSH REL
		ST (Fumes)	20 mg/m3	NIOSH REL
		TWA	10 mg/m3	OSHA P0
		STEL	20 mg/m3	OSHA P0
		TWA (Fumes)	10 mg/m3	ACGIH
		STEL (Fumes)	20 mg/m3	ACGIH
		TWA (Fumes)	10 mg/m3	NIOSH REL
		ST (Fumes)	20 mg/m3	NIOSH REL
sodium fluoride	7681-49-4	TWA	2.5 mg/m3 (Fluorine)	NIOSH REL
		TWA	2.5 mg/m3 (Fluorine)	OSHA Z-1
		TWA	2.5 mg/m3 (Fluorine)	ACGIH
		TWA	2.5 mg/m3 (Fluorine)	OSHA P0
		TWA	2.5 mg/m3 (Fluorine)	NIOSH REL
		TWA	2.5 mg/m3 (Fluorine)	OSHA Z-1
		TWA	2.5 mg/m3 (Fluorine)	ACGIH
		TWA	2.5 mg/m3 (Fluorine)	OSHA P0
boric acid	10043-35-3	TWA (Inhalable fraction)	2 mg/m3	ACGIH
		TWA (Inhalable fraction)	2 mg/m3	ACGIH
		STEL (Inhalable fraction)	6 mg/m3	ACGIH
		STEL (Inhalable fraction)	6 mg/m3	ACGIH
		TWA (Inhalable fraction)	2 mg/m3 (Borate)	ACGIH
		STEL (Inhalable fraction)	6 mg/m3 (Borate)	ACGIH
zinc chloride	7646-85-7	TWA (Fumes)	1 mg/m3	OSHA Z-1
		TWA	1 mg/m3	ACGIH
		STEL	2 mg/m3	ACGIH
		TWA (Fumes)	1 mg/m3	NIOSH REL
		ST (Fumes)	2 mg/m3	NIOSH REL

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		TWA	1 mg/m ³	OSHA P0
		STEL	2 mg/m ³	OSHA P0
		TWA (Fumes)	1 mg/m ³	ACGIH
		STEL (Fumes)	2 mg/m ³	ACGIH
		TWA (Fumes)	1 mg/m ³	NIOSH REL
		ST (Fumes)	2 mg/m ³	NIOSH REL
		TWA (Fumes)	1 mg/m ³	OSHA P0
		STEL (Fumes)	2 mg/m ³	OSHA P0

Hazardous components without workplace control parameters

Ingredients	CAS-No.
Magnesium chloride, hexahydrate	7791-18-6
calcium chloride dihydrate	10035-04-8
4-Morpholineethanesulfonic acid	145224-94-8
potassium thiocyanate	333-20-0
sodium nitrate	7631-99-4
Sodium cacodylate trihydrate	6131-99-3
imidazole	288-32-4

Biological occupational exposure limits

Ingredients	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
	7681-49-4	Fluoride (Fluorine)	Urine	Prior to shift (16 hours after exposure ceases)	2 mg/l	ACGIH BEI
		Fluoride (Fluorine)	Urine	End of shift (As soon as possible after exposure ceases)	3 mg/l	ACGIH BEI

Personal protective equipment

Respiratory protection : In the case of vapor formation use a respirator with an approved filter.

Hand protection
Material : Protective gloves

Remarks : The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Take note of the information given by the producer concerning permeability and break

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	through times, and of special workplace conditions (mechanical strain, duration of contact).
Eye protection	: Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems. Do not wear contact lenses. Ensure that eyewash stations and safety showers are close to the workstation location.
Skin and body protection	: Choose body protection according to the amount and concentration of the dangerous substance at the workplace. Footwear protecting against chemicals
Hygiene measures	: Keep away from food and drink. Wash hands before breaks and at the end of workday. Ensure adequate ventilation, especially in confined areas. Keep working clothes separately. Avoid contact with the skin and the eyes. When using do not eat, drink or smoke.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Color	: No data available
Odor	: No data available
Odor Threshold	: No data available
pH	: No data available
Melting point/range	: No data available
Boiling point/boiling range	: No data available
Flash point	: No data available
Evaporation rate	: No data available
Burning rate	: No data available
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapor pressure	: No data available
Relative vapor density	: No data available
Relative density	: No data available
Density	: No data available

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Solubility(ies)	
Water solubility	: No data available
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Autoignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No decomposition if stored and applied as directed.
Chemical stability	: No decomposition if stored and applied as directed.
Possibility of hazardous reactions	: Stable under recommended storage conditions. Hazardous decomposition products formed under fire conditions. Keep away from oxidizing agents, and acidic or alkaline products.
Conditions to avoid	: No data available
Incompatible materials	: No data available
Hazardous decomposition products	: No decomposition if stored and applied as directed.

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity**

Not classified based on available information.

Product:

Acute oral toxicity	: No data available
	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity	: No data available
	Acute toxicity estimate: > 40 mg/l

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Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute dermal toxicity : No data available

Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Ingredients:**PEG:**

Acute inhalation toxicity : No data available

Acute dermal toxicity : No data available

Magnesium chloride, hexahydrate:

Acute oral toxicity : LD50 Oral (Rat): 8,100 mg/kg

sodium iodide:

Acute oral toxicity : LD50 Oral (Rat): 4,340 mg/kg

potassium thiocyanate:

Acute oral toxicity : LD50 Oral (Rat): 854 mg/kg

sodium nitrate:

Acute oral toxicity : LD50 Oral (Rat): 1,267 mg/kg

LD50 Oral (Rabbit): 2,680 mg/kg

ammonium chloride:

Acute oral toxicity : LD50 Oral (Rat): 1,650 mg/kg

sodium fluoride:

Acute oral toxicity : LD50 Oral (Rat, female): 148.5 mg/kg

LD50 Oral (Mouse): 44 mg/kg

LD50 Oral (Rabbit): 200 mg/kg

LD50 Oral (Rat, male): 223 mg/kg

imidazole:

Acute oral toxicity : LD50 Oral (Rat): 970 mg/kg

boric acid:

Acute oral toxicity : LD50 Oral (Rat): 2,660 mg/kg

zinc chloride:

Acute oral toxicity : LD50 Oral (Rat): 350 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Product:

Remarks:

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May cause skin irritation and/or dermatitis.

Ingredients:

zinc chloride:

Assessment: Causes burns.

Result: Causes burns.

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Remarks:

May cause irreversible eye damage.

Ingredients:

zinc chloride:

Result: Risk of serious damage to eyes.

Assessment: Risk of serious damage to eyes.

Respiratory or skin sensitization

Skin sensitization: Not classified based on available information.

Respiratory sensitization: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Ingredients:

zinc chloride:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Result: positive

Carcinogenicity

May cause cancer.

IARC

Group 2A: Probably carcinogenic to humans

Sodium nitrate

7631-99-4

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

May damage fertility or the unborn child.

STOT-single exposure

May cause respiratory irritation.

Ingredients:

zinc chloride:

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

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STOT-repeated exposure

Not classified based on available information.

Ingredients:**zinc chloride:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration toxicity

Not classified based on available information.

Further information

No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**

Toxicity to fish : No data available

Toxicity to algae : No data available

Toxicity to bacteria : No data available

Ingredients:**PEG:**Toxicity to fish : (Leuciscus idus (Golden orfe)): > 500 mg/l
Exposure time: 96 h
Test Type: static test**sodium iodide:**Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 860 mg/l
Exposure time: 96 hToxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.17 mg/l
Exposure time: 48 h**potassium thiocyanate:**Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 hToxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 11 mg/l
Exposure time: 48 h**sodium nitrate:**Toxicity to fish : LC50 (Gambusia affinis (Mosquito fish)): 6,650 mg/l
Exposure time: 96 h
Test Type: static test**ammonium chloride:**Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 209 mg/l
Exposure time: 96 h

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Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 161 mg/l
Exposure time: 48 h

sodium fluoride:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 200 mg/l
Exposure time: 96 h

Sodium cacodylate trihydrate:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 53.5 mg/l
Exposure time: 48 h

imidazole:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 283.6 mg/l
Exposure time: 48 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 341.5 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Scenedesmus quadricauda (Green algae)): 133 mg/l
Exposure time: 72 h
Test Type: static test

Toxicity to bacteria : 45 mg/l
Exposure time: 0.5 h

boric acid:

Toxicity to fish : LC0 (Lepomis macrochirus (Bluegill sunfish)): 1,021 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 133 mg/l
Exposure time: 48 h

zinc chloride:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 38 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.33 mg/l
Exposure time: 48 h

Toxicity to algae : EC0 (Pseudokirchneriella subcapitata (microalgae)): 0.1 mg/l
Exposure time: 96 h

Toxicity to bacteria : (Bacteria): 45 mg/l

Persistence and degradability

No data available

Bioaccumulative potential**Product:**

Bioaccumulation : No data available

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Mobility in soil

No data available

Other adverse effects**Product:**

- Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
- Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

- Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and national regulations.
- Contaminated packaging : Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**UNRTDG**

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

Domestic regulation**49 CFR**

Not regulated as a dangerous good

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SECTION 15. REGULATORY INFORMATION**EPCRA - Emergency Planning and Community Right-to-Know****SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

sodium nitrate 7631-99-4

US State Regulations

California Prop. 65 This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION**Full text of other abbreviations**

(Q)SAR - (Quantitative) Structure Activity Relationship; ASTM - American Society for the Testing of Materials; bw - Body weight; DIN - Standard of the German Institute for Standardisation; EC_x - Concentration associated with x% response; EL_x - Loading rate associated with x% response; EmS - Emergency Schedule; ErC_x - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC₅₀ - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC₅₀ - Lethal Concentration to 50 % of a test population; LD₅₀ - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic

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Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; EHS - Extremely Hazardous Substance; HMIS - Hazardous Materials Identification System; MSHA - Mine Safety and Health Administration; NFPA - National Fire Protection Association; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SARA - Superfund Amendments and Reauthorization Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice; ERG - Emergency Response Guide; NTP - National Toxicology Program; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods

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The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.