



Product Safety Assessment

NEOLONE™ PE Preservative

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Names

- CAS No. 2682-20-4, 122-99-6
- 2-Methyl-4-isothiazolin-3-one
- NEOLONE™ PE preservative
- 2-Methyl-4-isothiazolin-3-one, Phenoxyethanol
- 2-Methyl-3(2H)-isothiazolone
- Methylisothiazolinone, Phenoxyethanol (INCI name)
- MIT

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Product Overview

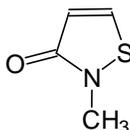
- NEOLONE™ PE preservative is a broad-spectrum antimicrobial product based on the active ingredient 2-methyl-4-isothiazolin-3-one (methylisothiazolinone). This product is formulated as a clear, colorless to yellow liquid.¹ For further details, see [Product Description](#).
- NEOLONE PE preservative is added to cosmetics and personal-care products to prevent or retard bacterial growth. NEOLONE PE preservative is formulated into leave-on skin- and sun-care products, antidandruff shampoos, and many other personal-care products.² For further details, see [Product Uses](#).
- Worker exposure to NEOLONE PE preservative is possible during manufacture, transport, or use. Consumers may use personal-care products that contain NEOLONE PE preservative.³ For further details, see [Exposure Potential](#).
- In the industrial setting, eye contact with undiluted product may cause severe irritation and possible permanent eye injury. The solvents in this product can be absorbed through intact skin. Skin contact may cause severe irritation. Some individuals may experience sensitization through skin contact. Inhalation of product vapor or mist during processing may cause severe irritation to the nose, throat, and lungs.⁴ For further details, see [Health Information](#).
- Methylisothiazolinone, the main active ingredient in NEOLONE PE preservative, is not persistent and is quickly degraded in the environment. Methylisothiazolinone has a low risk of accumulating in the food chain and is considered highly toxic to aquatic organisms on an acute basis.^{5,6} For further details, see [Environmental Information](#).
- NEOLONE PE preservative is stable under recommended storage and use conditions.⁷ For further details, see [Physical Hazard Information](#).

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Manufacture of Product

- **Capacity** – NEOLONE™ PE preservative is formulated in Buchs, Switzerland, by ACIMA Chemical Industries, a wholly owned subsidiary of The Dow Chemical Company. In the United States, NEOLONE PE preservative is manufactured by an affiliated company of Dow in Milwaukee, Wisconsin.
- **Process** – NEOLONE PE preservative is manufactured using proprietary Dow materials and technology. The chemical structure of the active substance 2-methyl-4-isothiazolin-3-one is shown below:



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Product Description^{8,9,10}

NEOLONE™ PE preservative is a broad-spectrum antimicrobial product based on the active ingredient 2-methyl-4-isothiazolin-3-one or [methyloisothiazolinone](#). It prevents or retards the growth of bacteria, yeasts, and molds. NEOLONE PE preservative is formulated as a clear, colorless to yellow liquid with less than 2% active ingredient. The level is further reduced when formulated into the final product. This product formulation also contains [phenoxyethanol](#) and [propylene glycol](#). [Phenoxyethanol](#) is a solvent with antimicrobial properties. [Propylene glycol](#) is a moisturizer and humectant.

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Product Uses^{11,12}

NEOLONE™ PE preservative is globally approved for use as a preservative in cosmetics and personal-care products. The active ingredients protect cosmetics and personal-care products from spoilage resulting from inadvertent contamination by the consumer during use. NEOLONE PE preservative is used as a preservative and bacterial-growth inhibitor in the following types of leave-on personal-care products:

- **Hair care** – shampoos, gels
- **Skin care** – lotions and creams, moisturizers
- **Sunscreens** – including avobenzone products
- **Cosmetics**

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Exposure Potential^{13,14}

NEOLONE™ PE preservative is used in the production of personal-care products and cosmetics. Based on this, the public could be exposed through:

- **Workplace exposure** – Those working with NEOLONE PE preservative in manufacturing and/or formulating operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit exposure. See [Health Information](#).
- **Consumer exposure to products containing NEOLONE PE preservative** – NEOLONE PE preservative is not sold for direct consumer use, but it is formulated into personal-care products, such as hair- and skin-care items, used by the general public. The main active ingredient [methyloisothiazolinone](#) is globally approved for safety in concentrations of up to

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0.01% by weight (100 ppm). Always read and follow product label instructions before use. See [Health Information](#).

- **Environmental releases** – Because NEOLONE™ PE preservative is formulated into personal-care products, small quantities could enter wastewater-treatment facilities when consumer products are washed off or discarded. The main active ingredient [methylisothiazolinone](#) biodegrades rapidly in both water and soil environments and is effectively removed by wastewater-treatment facilities. Methylisothiazolinone is highly toxic to aquatic organisms. The other components of this preservative formulation biodegrade readily and have low toxicity to fish and other aquatic organisms. See [Environmental](#), [Health](#), and [Physical Hazard Information](#).
- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, the focus is on immediate containment to prevent contamination of soil and surface or ground water. Ventilate the area. Cleanup personnel must wear an approved respirator. Dike the spill and absorb with inert solids such as sand or soil. Sweep or vacuum up spillage and collect in suitable and properly labeled containers. Dispose of inert solids with absorbed methylisothiazolinone according to all applicable governmental requirements. See [Environmental](#), [Health](#), and [Physical Hazard Information](#).
- **In case of fire** – Isolate the area and deny any unnecessary entry. Use foam or dry-chemical or carbon-dioxide (CO₂) extinguishers to fight the fire. A direct water stream may spread the fire. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Contain fire water if possible to minimize the potential for environmental damage. Follow emergency procedures carefully. See [Environmental](#), [Health](#), and [Physical Hazard Information](#).

For more information, see the relevant [Safety Data Sheet](#).

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Health Information^{15,16,17,18}

The safety of methylisothiazolinone has been assessed by the [Cosmetic Ingredient Review](#) (CIR) Expert Panel. The CIR Expert Panel evaluated the scientific data and concluded that [methylisothiazolinone](#) is safe for use as a cosmetic ingredient in concentrations up to 100 ppm. The CIR Expert Panel has also evaluated the safety of [phenoxyethanol](#) and [propylene glycol](#) for use as cosmetic ingredients. The panel determined that both compounds are safe for use in cosmetics and personal-care products.

Eye contact – Direct contact with undiluted product can cause severe irritation and possible permanent eye injury.

Skin contact – Contact with undiluted product can cause severe skin irritation. The solvents in this product can be absorbed through intact skin. Sensitization by skin contact is possible in some individuals.

Inhalation – Inhalation of product vapor or mist during processing can cause severe irritation of the nose, throat, and lungs. Prolonged excessive inhalation of product vapor or mist during processing can cause central nervous system (CNS) effects.

Ingestion – This product is harmful if swallowed.

Chronic exposure – Prolonged or repeated overexposure to the solvents in this product can cause central nervous system effects, damage to the liver, kidneys, and lungs, and changes in the blood.

For more information, see the relevant [Safety Data Sheet](#).

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Environmental Information^{19,20,21,22}

[Methylisothiazolinone](#), the main active ingredient in NEOLONE™ PE preservative, is soluble in water and, when introduced to the environment, will have a tendency to migrate to or remain in water.

Methylisothiazolinone is unlikely to persist in the environment. It is rapidly degraded to intermediates that are in turn readily biodegradable. As a result, the substance is expected to rapidly biodegrade in both water and soil environments, including biological wastewater-treatment facilities.

Methylisothiazolinone is not likely to accumulate in the food chain (bioconcentration potential is low) and is highly toxic to aquatic organisms on an acute basis.

[Phenoxyethanol](#), also called ethylene glycol phenyl ether, is readily biodegradable, has a low tendency to accumulate in the food chain (low bioconcentration potential), and is practically nontoxic to fish and other aquatic organisms on an acute basis.

[Propylene glycol](#), also called 1,2-dihydroxypropane, biodegrades readily, has a low tendency to accumulate in the food chain (low bioconcentration potential), and is practically nontoxic to fish and other aquatic organisms on an acute basis.

For more information, see the relevant [Safety Data Sheet](#).

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Physical Hazard Information²³

NEOLONE™ PE preservative is stable under recommended storage and use conditions.

For more information, see the relevant [Safety Data Sheet](#).

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Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of NEOLONE™ PE preservative. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant [Safety Data Sheet](#), [Technical Data Sheet](#), or [Contact Us](#).

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Additional Information

- Safety Data Sheet (www.dow.com/products/product_detail.page?display-mode=msds&product=1010139)
- Contact Us (www.dow.com/microbial/contact/index.htm)
- *NEOLONE™ PE: a Safe, Broad-Spectrum Preservative for Leave-on Products Based on Methylisothiazolinone and Phenoxyethanol*, Technical Data Sheet, Rohm and Haas Company, Form No. PC003204, October 2004 (www.dow.com/products/product_detail.page?display-mode=tds&product=1120828)
- *NEOLONE PE Preservative Global Cosmetic Dossier Version 6*, Rohm and Haas Company, May 25, 2011 (request from the [Dow Customer Information Group](#))
- "Methylisothiazolinone," webpage, The Personal Care Products Council, CosmeticsINFO.Org (www.cosmeticsinfo.org/ingredient_details.php?ingredient_id=684)

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- “Phenoxyethanol,” webpage, The Personal Care Products Council, CosmeticsINFO.Org (http://www.cosmeticsinfo.org/ingredient_details.php?ingredient_id=516)
- “Propylene Glycol,” webpage, The Personal Care Products Council, CosmeticsINFO.Org (http://www.cosmeticsinfo.org/ingredient_details.php?ingredient_id=51)
- “2-Methyl-3(2H)-isothiazolone,” Substance Registry Services, U.S. Environmental Protection Agency (EPA) webpage
http://iaspub.epa.gov/sor_internet/registry/substreg/searchandretrieve/advancedsearch/externalSearch.do?p_type=SRSITN&p_value=106138)
- NEOLONE™ for personal care preservatives for skin, sun, and hair care products webpage (www.dow.com/products/product_line_detail.page?product-line=1000064)
- “Ethylene Glycol Phenyl Ether, CAS No. 122-99-6,” *Screening Information Data Set (SIDS) Initial Assessment Report for SIAM 18*, Organisation for Economic Co-operation and Development (OECD), UNEP: Paris, France, April 20–23, 2004 (<http://www.chem.unep.ch/irptc/sids/oecdsids/122996.pdf>)
- “1,2-Dihydroxypropane, CAS No. 57-55-6,” *Screening Information Data Set (SIDS) Initial Assessment Report for SIAM 11*, Organisation for Economic Co-operation and Development (OECD), UNEP: Orlando, Florida, USA, January 23–26, 2001 (<http://www.chem.unep.ch/irptc/sids/oecdsids/57-55-6.pdf>)

For more business information about NEOLONE PE preservative, visit the [Dow Microbial Control](http://www.dow.com/microbial/) website at www.dow.com/microbial/.

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References

- ¹ NEOLONE™ PE Preservative Material Safety Data Sheet, Rohm and Haas Company, March 23, 2009, pages 1 and 3.
- ² NEOLONE PE preservative webpage (www.dow.com/products/product_detail.page?product-line=1000064&product=1010139)
- ³ NEOLONE PE Preservative Material Safety Data Sheet, Rohm and Haas Company, March 23, 2009, page 3.
- ⁴ NEOLONE PE Preservative Material Safety Data Sheet, Rohm and Haas Company, March 23, 2009, pages 1–2 and 4.
- ⁵ NEOLONE PE Preservative Material Safety Data Sheet, Rohm and Haas Company, March 23, 2009, pages 4–5.
- ⁶ NEOLONE PE Preservative Global Cosmetic Dossier Version 6, Rohm and Haas Company, May 25, 2011, page 14.
- ⁷ NEOLONE PE Preservative Material Safety Data Sheet, Rohm and Haas Company, March 23, 2009, pages 3–4.
- ⁸ NEOLONE PE Preservative Material Safety Data Sheet, Rohm and Haas Company, March 23, 2009, pages 1 and 3.
- ⁹ “Phenoxyethanol,” webpage, The Personal Care Products Council, CosmeticsINFO.Org (http://www.cosmeticsinfo.org/ingredient_details.php?ingredient_id=516)
- ¹⁰ “Propylene Glycol,” webpage, The Personal Care Products Council, CosmeticsINFO.Org (http://www.cosmeticsinfo.org/ingredient_details.php?ingredient_id=51)
- ¹¹ NEOLONE PE preservative webpage (www.dow.com/products/product_detail.page?product-line=1000064&product=1010139)
- ¹² “Methylisothiazolinone,” webpage, The Personal Care Products Council, CosmeticsINFO.Org (http://www.cosmeticsinfo.org/ingredient_details.php?ingredient_id=684)
- ¹³ NEOLONE PE Preservative Material Safety Data Sheet, Rohm and Haas Company, March 23, 2009, pages 2–3 and 4–5.
- ¹⁴ NEOLONE™ PE Preservative Global Cosmetic Dossier Version 6, Rohm and Haas Company, May 25, 2011, page 14.

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- ¹⁵ “Methylisothiazolinone,” webpage, The Personal Care Products Council, CosmeticsINFO.Org (http://www.cosmeticsinfo.org/ingredient_details.php?ingredient_id=684)
- ¹⁶ *NEOLONE™ PE Preservative Material Safety Data Sheet*, Rohm and Haas Company, March 23, 2009, pages 1–2 and 4.
- ¹⁷ “Phenoxyethanol,” webpage, The Personal Care Products Council, CosmeticsINFO.Org (http://www.cosmeticsinfo.org/ingredient_details.php?ingredient_id=516)
- ¹⁸ “Propylene Glycol,” webpage, The Personal Care Products Council, CosmeticsINFO.Org (http://www.cosmeticsinfo.org/ingredient_details.php?ingredient_id=51)
- ¹⁹ *NEOLONE PE Preservative Material Safety Data Sheet*, Rohm and Haas Company, March 23, 2009, pages 4–5.
- ²⁰ *NEOLONE PE Preservative Global Cosmetic Dossier Version 6*, Rohm and Haas Company, May 25, 2011, pages 13 and 14.
- ²¹ “Ethylene Glycol Phenyl Ether CAS No. 122-99-6,” *Screening Information Data Set (SIDS) Initial Assessment Report for SIAM 18*, Organisation for Economic Co-operation and Development (OECD), UNEP: Paris, France, April 20–23, 2004, page 5.
- ²² “1,2-Dihydroxypropane CAS No. 57-55-6,” *Screening Information Data Set (SIDS) Initial Assessment Report for SIAM 11*, Organisation for Economic Co-operation and Development (OECD), UNEP: Orlando, Florida, USA, January 23–26, 2001, page 3.
- ²³ *NEOLONE PE Preservative Material Safety Data Sheet*, Rohm and Haas Company, March 23, 2009, pages 3–4.

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NOTICES:

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