Product Safety Assessment
NEOLONE™ DsP Preservative

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Names
- CAS No. 2682-20-4
- CAS No. 99-76-3
- CAS No. 94-13-3
- NEOLONE™ DsP preservative
- Methylisothiazolinone
- Methyl Paraben
- Propyl Paraben
- 2-Methyl-4-isothiazolin-3-one, Benzoic acid, 4-hydroxy-, methyl ester, Hydroxy-benzoic acid, propyl (INCI Name)
- Methylisothiazolinone
- 2-Methyl-4-isothiazolin-3-one
- MIT
- 2-Methyl-3(2H)-isothiazolone

Product Overview
- NEOLONE™ DsP 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 white to light-grey liquid dispersion.¹ For further details, see Product Description.
- NEOLONE DsP preservative is added to cosmetics and personal-care products to prevent or retard bacterial growth. NEOLONE DsP preservative is formulated into skin-care lotions and creams, moisturizers, sun-care products, eye and facial cosmetics, and many other personal-care products.² For further details, see Product Uses.
- Worker exposure to NEOLONE DsP preservative is possible during manufacture, transport, or use. Consumers may use personal-care products that contain NEOLONE DsP preservative.³ For further details, see Exposure Potential.
- In the industrial setting, eye contact with undiluted product may cause irritation. Prolonged or repeated skin contact may result in de-fatting and drying of the skin, which can lead to irritation and dermatitis. Some individuals may experience sensitization through skin contact. Inhalation of product vapor or mist during processing may irritate the nose, throat, and lungs.⁴ For further details, see Health Information.
- Methylisothiazolinone, the main active ingredient in NEOLONE DsP 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.

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- NEOLONE™ DsP preservative is stable under recommended storage and use conditions. For further details, see Physical Hazard Information.

Manufacture of Product
- **Capacity** – NEOLONE™ DsP preservative is formulated in Buchs, Switzerland, by ACIMA Chemical Industries, a wholly owned subsidiary of The Dow Chemical Company.
- **Process** – NEOLONE DsP 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
NEOLONE™ DsP preservative is a broad-spectrum antimicrobial product based on the active ingredient 2-methyl-4-isothiazolin-3-one or methylisothiazolinone. Methylisothiazolinone prevents or retards the growth of bacteria, yeasts, and molds. NEOLONE DsP preservative is formulated as a white to light-grey liquid dispersion with less than 1% active ingredient. The level is further reduced when formulated into the final product. This product formulation also contains parabens. Parabens are preservatives that are highly effective in preventing the growth of fungi and bacteria.

Product Uses
NEOLONE™ DsP 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 DsP preservative is used as a preservative and bacterial-growth inhibitor in the following types of leave-on personal products:
- Skin-care lotions and creams
- Body moisturizers
- Sun-protection products – including sunscreens with avobenzone
- Hair-care gels
- Wipes
- Eye and facial makeup

Exposure Potential
NEOLONE™ DsP 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 DsP 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.

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Consumer exposure to products containing NEOLONE™ DsP preservative – NEOLONE DsP preservative is not sold for direct consumer use, but it is formulated into personal-care products, such as skin-care lotions and creams, used by the general public. The active ingredient methylisothiazolinone is globally approved for safety in concentrations of up to 0.01% by weight (100 ppm). Always read and follow product label instructions before use. See Health Information.

Environmental releases – Because NEOLONE™ DsP 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. 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. 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 water spray or mist, foam, or dry-powder or carbon-dioxide 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.

Health Information

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 at concentrations up to 100 ppm.

Eye contact – Contact with undiluted product can cause eye irritation.

Skin contact – Prolonged or repeated skin contact with undiluted product can cause defatting and drying of the skin, leading to irritation and dermatitis. Contact may cause skin sensitization in susceptible individuals.

Inhalation – Inhalation of product vapor or mist during processing can cause irritation of the nose, throat, and lungs. Headache and nausea are also possible.

Other – The U.S. Food and Drug Administration (FDA) has classified methyl and propylparaben as Generally Recognized as Safe (GRAS) by medical and toxicological experts for use in preserving food. The FDA has also stated that parabens are safe for use in cosmetics.

For more information, see the relevant Safety Data Sheet.
Environmental Information\textsuperscript{17,18,19}
Methylisothiazolinone, the main active ingredient in NEOLONE™ DsP 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.

Parabens are expected to biodegrade in the environment and are not likely to accumulate in the food chain (low bioconcentration potential). Propylparaben is toxic to aquatic organisms. Methylparaben is moderately toxic to fish and other aquatic organisms.

For more information, see the relevant Safety Data Sheet.

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Physical Hazard Information\textsuperscript{20}
NEOLONE™ DsP 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™ DsP 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
- Contact Us (www.dow.com/microbial/contact/index.htm)
- NEOLONE DsP Preservative Global Cosmetic Dossier Version 6, Rohm and Haas Company, May 23, 2011 (request from the Dow Customer Information Group)
- “Paraben Information,” webpage, The Personal Care Products Council, CosmeticsINFO.Org (www.cosmeticsinfo.org/HBI/9)

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- NEOLONE for personal care preservatives for skin, sun, and hair care products webpage (www.dow.com/products/product_line_detail.page?product-line=1000064)
- “Methylparaben CASRN: 99-76-3,” Hazardous Substances Data Bank (HSDB), U.S. National Library of Medicine, TOXNET website (http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB) type methylparaben or 99-76-3 in the search box, then click the [search] button

For more business information about NEOLONE™ DsP preservative, visit the Dow Microbial Control website at www.dow.com/microbial/.

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References

1. NEOLONE™ DsP Preservative Material Safety Data Sheet, Rohm and Haas Company, October 20, 2006, pages 1 and 3.
8. NEOLONE™ DsP Preservative Material Safety Data Sheet, Rohm and Haas Company, October 20, 2006, pages 1 and 3.

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