



## NEOLONE™ DsP A Safe, Broad Spectrum Preservative for Leave-on Products Based on a Blend of Methylisothiazolinone, Methylparaben and Propylparaben

Rohm and Haas further expands its range of global preservatives for the personal care market and launches a new proprietary preservative combination, NEOLONE DsP. Neolone preservatives are based on Methylisothiazolinone chemistry and have been designed to offer broad spectrum control, ease of use and application in global formulations.

### Chemical Identification

CTFA/INCI Name	CAS Number	Empirical Formula
Methylparaben	99-76-3	C <sub>8</sub> H <sub>8</sub> O <sub>3</sub>
Propylparaben	94-13-3	C <sub>10</sub> H <sub>12</sub> O <sub>3</sub>
Methylisothiazolinone	2682-20-4	C <sub>4</sub> H <sub>5</sub> NOS

### Typical Properties

These properties are typical but do not constitute specifications.

Appearance	Flowable fluid
Color	White
pH	6 to 7.5 (10% aqueous solution)
Specific gravity	1.06
Solubility	Sparingly miscible in water, propylene glycol and lower alcohols
Viscosity at 22°C	Brookfield LV4: rpm 12: 6600 mPa.s rpm 60: 2400 mPa.s
Rheology	Pseudoplastic

### Applications

- Skin care lotions and creams
- Body moisturizers
- Suncare products (including those with avobenzone)
- Hair gels
- Wipes
- Suitable for all types of rinse-off applications

### Recommended Use Rates

NEOLONE DsP is recommended for use at up to 1%. At this level the product provides 100 ppm active ingredient of methylisothiazolinone which is the limit approved by international regulations. NEOLONE DsP preservative should be added as the last ingredient and at the lowest temperature ( $\leq 45^{\circ}\text{C}$  if possible).

### Features and Benefits

- Activity versus Gram-positive and Gram-negative bacteria, yeasts, and molds
- Effective alternative to formaldehyde releasers
- Ease of use in manufacturing
- Compatible with a wide range of personal care raw materials including surfactants and emulsifiers, zinc pyrithione and avobenzone
- Excellent stability over a wide range of pH and temperature

### Analytical Procedures

High Performance Liquid Chromatography (HPLC) is the preferred method for determining low levels of NEOLONE DsP active ingredients.

## Storage

NEOLONE DsP should be stored at room temperature in tightly closed original containers, protected from heat and frost.

## NEOLONE DsP Performance in a Body Lotion (pH 5.6)

The European Pharmacopoeia (EP) challenge test is widely recognized as standard by the Cosmetic and pharmaceutical industries in the EU states. The EP test consists of one inoculation of 1% of each specified standard strain **separately**, there being four different strains. The estimation of microbial contamination is made immediately after inoculation, and should be in the region of  $10^5$  to  $10^6$  cfu/ml or cfu/g. The microbial contamination is determined after 48 hours, 7, 14 and 28 days.

### Efficacy on Bacteria

Preservative	European Pharmacopoeia Challenge Test					
	Time →	0	2	7	14	28
Unpreserved Control		$10^6$	$10^6$	$10^7$	$10^6$	$10^6$
NEOLONE DsP: 0.75%	Pa: $10^6$	Pa < 10	Pa < 10	Pa < 10	Pa < 10	Pa < 10
	Sa: $10^5$	Sa < 10	Sa < 10	Sa < 10	Sa < 10	Sa < 10
NEOLONE DsP: 1.0%	Pa: $10^2$	Pa < 10	Pa < 10	Pa < 10	Pa < 10	Pa < 10
	Sa: $10^6$	Sa < 10	Sa < 10	Sa < 10	Sa < 10	Sa < 10
<b>Competitive Benchmark</b>						
Phenonip™: 0.65%	Pa: $10^3$	Pa < 10	Pa < 10	Pa < 10	Pa < 10	Pa < 10
	Sa: $10^4$	Sa < 10	Sa < 10	Sa < 10	Sa < 10	Sa < 10
Phenonip: 0.8%	Pa: $10^3$	Pa < 10	Pa < 10	Pa < 10	Pa < 10	Pa < 10
	Sa: $10^4$	Sa < 10	Sa < 10	Sa < 10	Sa < 10	Sa < 10
Nipastat™: 0.4%	Pa: $10^3$	Pa < 10	Pa < 10	Pa < 10	Pa < 10	Pa < 10
	Sa: $10^5$	Sa < 10	Sa < 10	Sa < 10	Sa < 10	Sa < 10

Pa: *Pseudomonas aeruginosa* (ATCC 9027)      Sa: *Staphylococcus aureus* (ATCC 6538)

### Efficacy on Fungi

Preservative	European Pharmacopoeia Challenge Test					
	Time →	0	2	7	14	28
Unpreserved Control		$10^5$	$10^5$	$10^6$	$10^6$	$10^6$
NEOLONE DsP: 0.75%	An: $10^3$	An: $10^2$	An: $10^2$	An < 10	An < 10	An < 10
	Ca: $10^4$	Ca < 10	Ca < 10	Ca < 10	Ca < 10	Ca < 10
NEOLONE DsP: 1.0%	An: $10^4$	An < 10	An < 10	An < 10	An < 10	An < 10
	Ca: $10^4$	Ca < 10	Ca < 10	Ca < 10	Ca < 10	Ca < 10
<b>Competitive Benchmark</b>						
Phenonip: 0.65%	An: $10^5$	An: $10^4$	An: $10^3$	An: $10^3$	An: $10^3$	An: $10^3$
	Ca: $10^3$	Ca < 10	Ca < 10	Ca < 10	Ca < 10	Ca < 10
Phenonip: 0.8%	An: $10^5$	An: $10^2$	An < 10	An < 10	An < 10	An < 10
	Ca: $10^3$	Ca < 10	Ca < 10	Ca < 10	Ca < 10	Ca < 10
Nipastat: 0.4%	An: $10^5$	An: $10^4$	An: $10^3$	An: $10^3$	An: $10^2$	An: $10^2$
	Ca: $10^4$	Ca: $10^4$	Ca: $10^3$	Ca: $10^2$	Ca < 10	Ca < 10

An: *Aspergillus niger* (ATCC 16404)

Ca: *Candida albicans* (ATCC 10231)

## NEOLONE DsP Performance in a Moisturizing Day Cream (pH 7.0)

The requirements of the test for topical preparation:

1. A reduction in **bacteria** of at least  $10^2$  within 48 hours and at least  $10^3$  within 7 days. Concentration of each test microorganism remains at or below these designated levels during the remainder of the 28-day test period.
2. A reduction in **molds/yeast** of at least  $10^2$  within 14 days. Concentration of each test microorganism remains at or below these designated levels during the remainder of the 28-day test period.

The requirements for the EP challenge test are similar to those for the Cosmetic Toiletry Fragrance Association (CTFA) challenge test method.

### Efficacy on Bacteria

Preservative	European Pharmacopeia Challenge Test					
	Time →	0	2	7	14	28
Unpreserved Control		$10^6$	$10^6$	$10^7$	$10^7$	$10^6$
NEOLONE DsP: 0.75%	Pa:	$10^7$	Pa < 10	Pa < 10	Pa < 10	Pa < 10
	Sa:	$10^7$	Sa: $10^3$	Sa < 10	Sa < 10	Sa < 10
NEOLONE DsP: 1.0%	Pa:	$10^7$	Pa < 10	Pa < 10	Pa < 10	Pa < 10
	Sa:	$10^7$	Sa: $10^3$	Sa < 10	Sa < 10	Sa < 10
<b>Competitive Benchmark</b>						
Phenonip: 0.65%	Pa:	$10^7$	Pa: $10^4$	Pa < 10	Pa < 10	Pa < 10
	Sa:	$10^6$	Sa: $10^4$	Sa: $10^3$	Sa < 10	Sa < 10
Phenonip: 0.8%	Pa:	$10^7$	Pa: $10^2$	Pa < 10	Pa < 10	Pa < 10
	Sa:	$10^6$	Sa: $10^2$	Sa < 10	Sa < 10	Sa < 10
Nipastat: 0.4%	Pa:	$10^5$	Pa: $10^5$	Pa: $10^3$	Pa: $10^3$	
	Sa:	$10^5$	Sa: $10^5$	Sa: $10^3$	Sa: $10^2$	

Pa: *Pseudomonas aeruginosa* (ATCC 9027)      Sa: *Staphylococcus aureus* (ATCC 6538)

### Efficacy on Fungi

Preservative	European Pharmacopeia Challenge Test					
	Time →	0	2	7	14	28
Unpreserved Control		$10^5$	$10^5$	$10^6$	$10^6$	$10^6$
NEOLONE DsP: 0.75%	An:	$10^4$	An < 10	An < 10	An < 10	An < 10
	Ca:	$10^6$	Ca: $10^3$	Ca < 10	Ca < 10	Ca < 10
NEOLONE DsP: 1.0%	An:	$10^4$	An < 10	An < 10	An < 10	An < 10
	Ca:	$10^5$	Ca: $10^3$	Ca < 10	Ca < 10	Ca < 10
<b>Competitive Benchmark</b>						
Phenonip: 0.65%	An:	$10^4$	An: $10^4$	An: $10^3$	An: $10^2$	An < 10
	Ca:	$10^6$	Ca: $10^4$	Ca: $10^2$	Ca < 10	Ca < 10
Phenonip: 0.8%	An:	$10^5$	An: $10^4$	An: $10^3$	An: $10^2$	An < 10
	Ca:	$10^6$	Ca: $10^4$	Ca: $10^3$	Ca < 10	Ca < 10
Nipastat: 0.4%	An:	$10^5$	An: $10^5$	An: $10^3$	An: $10^2$	
	Ca:	$10^4$	Ca: $10^5$	CaP $10^3$	Ca: $10^2$	

An: *Aspergillus niger* (ATCC 16404)

Ca: *Candida albicans* (ATCC 10231)

---

NEOLONE is a trademark of Rohm and Haas Company, or of its subsidiaries or affiliates. The company's policy is to register its trademarks where products designated thereby are marketed by the company, its subsidiaries or affiliates. These suggestions and data are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use of our products are beyond our control. We recommend that the prospective user determine the suitability of our materials and suggestions before adopting them on a commercial scale. Suggestions for use of our products, or the inclusion of descriptive material from patents and the citation of specific patents in this publication, should not be understood as recommending the use of our products in violation of any patents or as permission or license to use any patent of the Rohm and Haas Company.

PHENONIP and NIPASTAT are trademarks of Clariant International Ltd.

Material Safety Data Sheets outlining safety hazards and handling methods for our products are available on request.

Rohm and Haas Co. has a US Patent covering NEOLONE DsP and other similar products.



©Rohm and Haas, 2007 All rights reserved.

October 2006  
PC0332006\_Global