Technical Data Sheet

Clariant In-can Biocides

Clariant

Exactly your chemistry.

®Nipacide BSM

Combination of: 1,2-Benzisothiazolin-3-one (BIT)
2-Methylisothiazolin-3-one (MIT)

Description:

Nipacide BSM is an, isothiazolinone blend, water based, low toxicity biocide, developed for the complete in-can protection of water based products. Nipacide BSM is effective against a wide range of microorganisms including gram positive and gram negative bacteria, yeast and fungi. Microorganisms grow at a rapid rate and without use of the correct biocide, numbers can increase dramatically.

Example of the numbers of bacteria able to grow in products if left unpreserved

- Time = 0 mins 1
- Time = 40 mins 4
- Time = 3 hrs 1024
- Time = 5 hrs 16,384
- Time = 7 hrs 1,048,576
- Time = 10 hrs 107,000,000,000

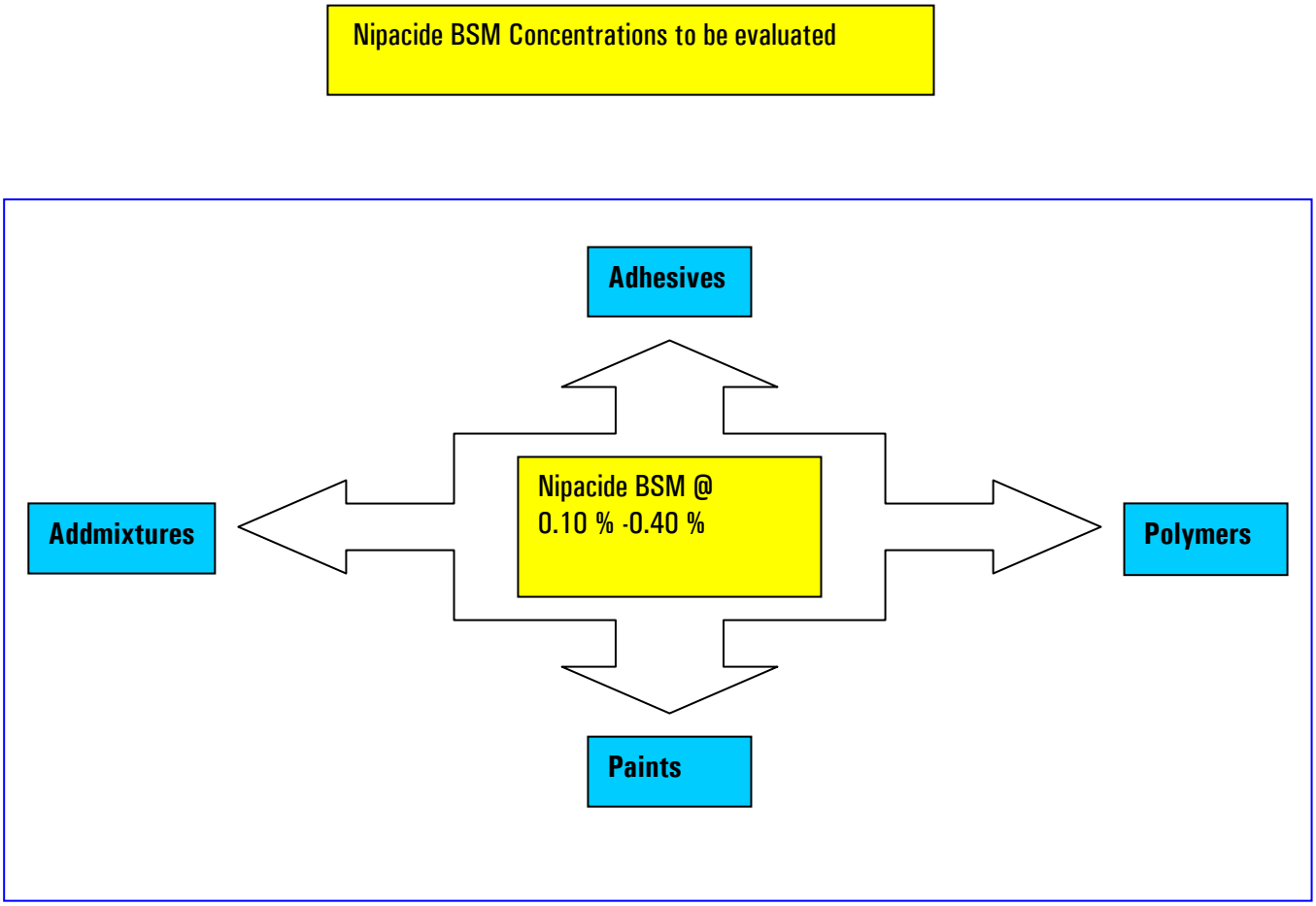
Time = 24 hrs
236,000,000,000,000,000,000,000

In-Can degradation in paints, polymer and adhesives as a result of bacterial and fungal contamination, can result in:

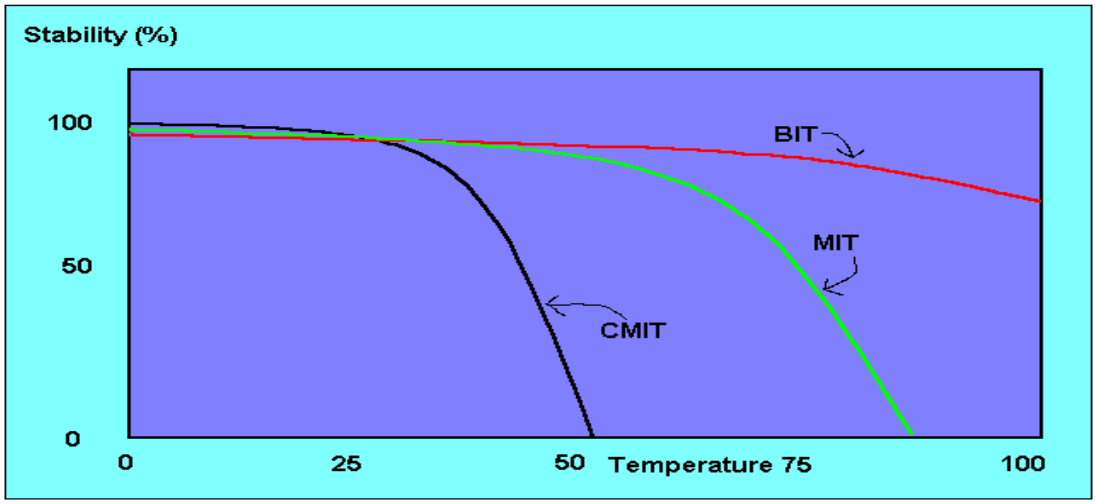
- Loss of viscosity
- Gassing
- Discoloration
- Bad odors
- Product splitting
- Loss of adhesion
- Production clean down and production down time
- **Loss of profit**

Applications:

Nipacide BSM is recommended for preservation of a wide range of applications including water based, casein, and PVA adhesives. Polymer emulsions including, SBR latex, Polyvinyl acetate and acrylic. Water based decorative paints, household products including dishwashing liquids, car care products, metal working fluids, Calcium Carbonate and Kaolin mineral slurries. Nipacide BSM is effective against a wide range of spoilage organisms and effective up to pH 10 and temperature stable up to 60°C.
At recommended use concentrations there is no requirement to label as skin sensitizer R43



Temperature stability of Nipacide BIT compared to CMIT/MIT



Use level:

Nipacide BSM should be evaluated in finished products at levels between 0.10 % and 0.40 %.

Microbiological data:

Nipacide BSM has a broad spectrum of activity which is demonstrated by the following MIC data.

MIC Levels

Organism	MIC (ppm)
Bacteria	
Pseudomonas aeruginosa	*500*
Pseudomonas putida	*500*
Proteus vulgaris	*200*
Escherichia coli	*200*
Staphylococcus aureus	*200*
Fungi	
Aspergillus niger	*800*
Penicillium mineoluteum	*500*
Fusarium solani	*300*
Geotrichum candidum	*1000*
Yeast	
Candida albicans	*500*

STANDARD FIVE CHALLENGE TEST METHOD: Bacterial Challenge Test.

Samples Tested: Acrylic Polymer emulsion

INOCULUM

The mixed Inoculum of bacteria, used is as follows :

Bacteria:

Pseudomonas aeruginosa

Alcaligenes faecalis

Proteus vulgaris

Escherichia coli

			Standard scoring system				
Product	**Biocide**	**Level (%)**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**
Acrylic polymer emulsion	**Unpreserved**	**---**	3	3	3	3	3
Acrylic polymer emulsion	**Nipacide BSM**	**0.15**	0	0	0	1	1
Acrylic polymer emulsion	**Nipacide BSM**	**0.30**	0	0	0	0	0

STANDARD FIVE CHALLENGE TEST METHOD: Fungal Challenge Test.

Samples Tested: Acrylic polymer emulsion

INOCULUM

The mixed Inoculum of fungi and yeast used is as follows :

Fungi:

Fusarium solani

Geotrichum candidum

Aspergillus terreus

Yeast

Rhodotorula rubra

Saccharomyces cerevisiae

			Standard scoring system				
Product	**Biocide**	**Level (%)**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**
Acrylic polymer emulsion	**Unpreserved**	**---**	3	3	3	3	3
Acrylic polymer emulsion	**Nipacide BSM**	**0.15**	0	0	0	1	2
Acrylic polymer emulsion	**Nipacide BSM**	**0.30**	0	0	0	0	0

Key: 0 - Complete Kill

1 - $<10^2$ Organisms /ml

2 - 10^2 - 10^4 Organisms/ml

3 - $>10^4$ Organisms/ml

Chemical compatibility:

Nipacide BSM is compatible with most raw materials used in the manufacture of industrial products. Nipacide BSM compatibility should always be checked and evaluated before use.

Clariant Technical Service:

Clariant technical service is available to assist customers in the determination of the optimum use level of biocide required to fully protect their product. A dedicated team of microbiologists are on hand at all times to assist customers with technical enquiries relating to product protection. Full microbiological efficacy testing is available.

AVAILABLE MICROBIOLOGICAL TESTING

- **In can challenge.**
- **Dry film**
- **Chemical analysis**
- **Identification**
- **Disinfectant testing**
- **Microbiological audits**

Regulations and approvals:

BfR XIV	Plastic dispersions
BfR XXXVI	Preservative for Paper and Board
RAL UZ-102	1,2-Benzisothiazolin-3-on and 2-Methylisothiazolin-3-on are listed

Use biocides safely. Always read the label and product information before use

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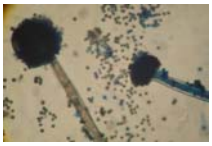

All information is given in good faith but without warranty. Customers should ensure that their use of the products comply with specific regulations in the relevant market