

Technical Data Sheet

Clariant In-can Biocides



Exactly your chemistry.

Nipacide BIT 20

Chemical name: 1,2-Benzisothiazolin-3-one

Description:

Nipacide BIT 20 is a glycol based solution; low toxicity biocide developed for the complete in-can protection of water based products. Nipacide BIT 20 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

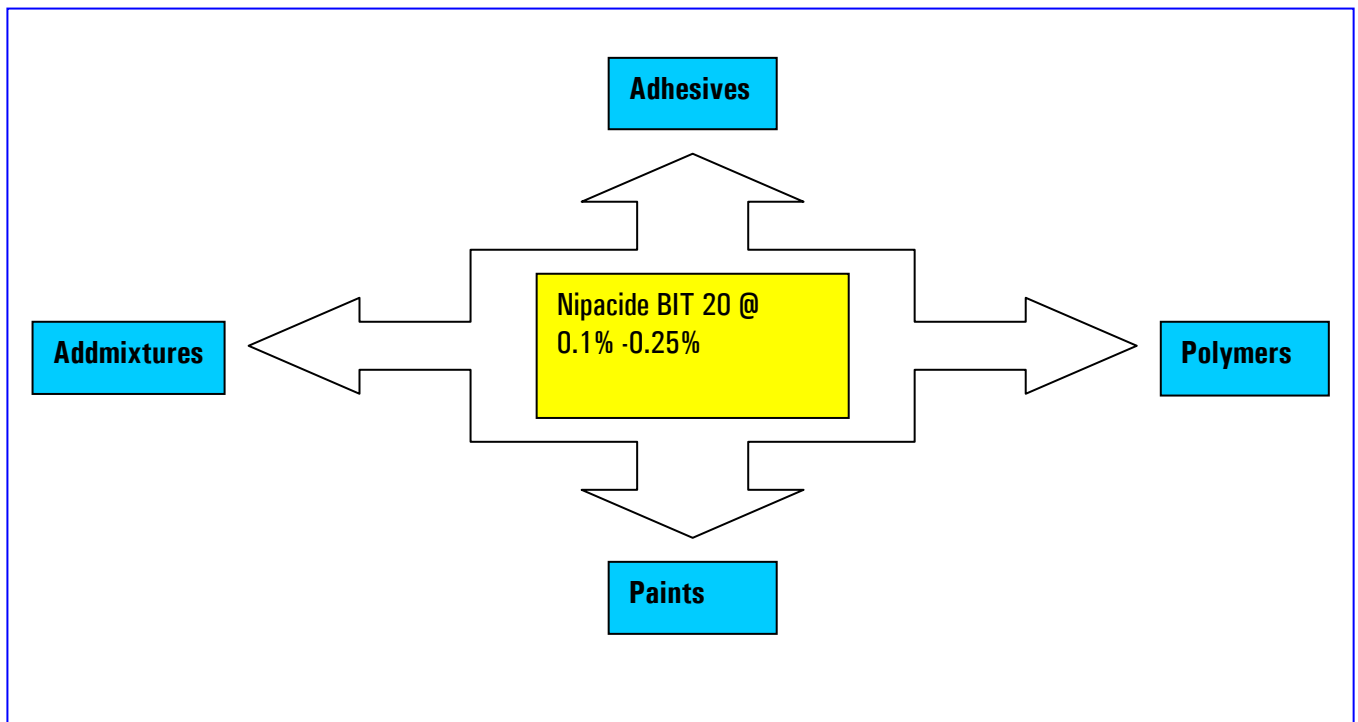
In-Can degradation in paints, polymer and adhesives as a result of bacterial and fungal contamination, can result in:

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

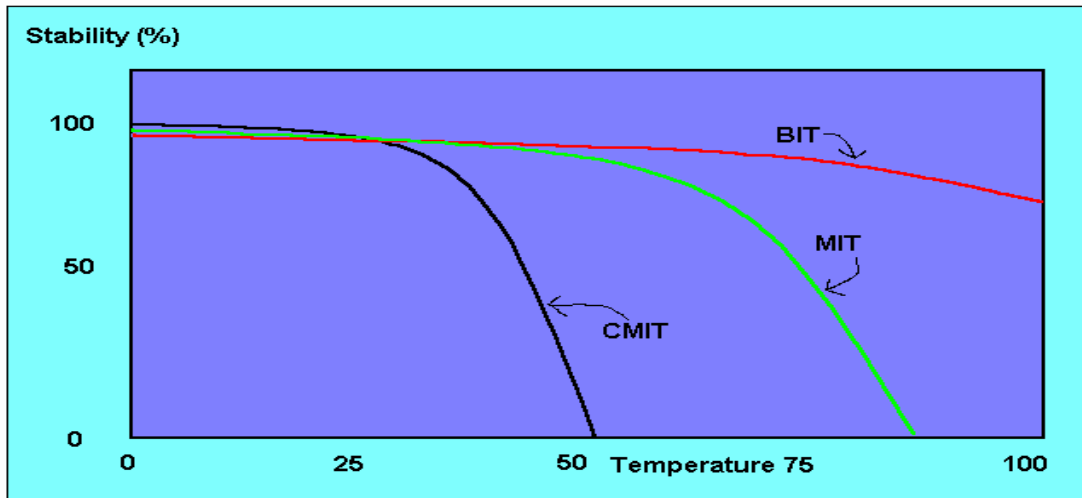
Applications:

Nipacide BIT 20 is recommended for preservation of a wide range of applications including water based, casein, animal bone based and PVA adhesives. Polymer emulsions including, SBR latex, Polyvinyl acetate and acrylic. Water based decorative paints, metal working fluids, Calcium Carbonate and Kaolin mineral slurries and concrete add-mixtures. Nipacide BIT 20 is effective against a wide range of spoilage organisms and effective over a wide pH and temperature range. Nipacide BIT 20 should be the biocide of choice for products with pH > 8 and production temperatures of > 40 C.

Nipacide BIT 20. Concentrations to be evaluated



Temperature stability of Nipacide BIT compared to CMIT/MIT



Use level:

Nipacide BIT 20 should be evaluated in finished products at levels between 0.1% and 0.25%. Please note that Nipacide BIT 20 above 0.25% requires R43 (causes sensitization by skin contact) hazard labeling.

Microbiological data:

Nipacide BIT 20 has a broad spectrum of activity which is demonstrated by the following MIC data.

MIC Levels	Organism	MIC (ppm)
	Bacteria	
	<i>Pseudomonas aeruginosa</i>	300
	<i>Pseudomonas putida</i>	250
	<i>Proteus vulgaris</i>	25
	<i>Escherichia coli</i>	25
	<i>Staphylococcus aureus</i>	25
	Fungi	
	<i>Aspergillus niger</i>	200
	<i>Penicillium mineoluteum</i>	150
	<i>Fusarium solani</i>	100
	<i>Geotrichum candidum</i>	500
	Yeast	
	<i>Candida albicans</i>	100

STANDARD FIVE CHALLENGE TEST METHOD: Bacterial Challenge Test.

Samples Tested: Water based decorative coating

INOCULUM

The mixed Inoculum of bacteria used is as follows : -

Bacteria:

Pseudomonas vesicularis

Providentia rettgeri

Alcaligenes faecalis

Flavobacterium odoratus

Enterobacter aerogenes

Escherichia coli

Product	Biocide	Level (%)	Standard scoring system				
			Week 1	Week 2	Week 3	Week 4	Week 5
Water based paint	Unpreserved	---	3	3	3	3	3
Water based paint	Nipacide BIT 20	0.15	0	0	0	0	1
Water based paint	Nipacide BIT 20	0.2	0	0	0	0	0
Water based paint	CMIT free Isothiazoline blend	0.15	0	1	1	2	3
Water based paint	CMIT free Isothiazoline blend	0.2	0	0	1	1	2

STANDARD FIVE CHALLENGE TEST METHOD: Fungal Challenge Test.

Samples Tested: Water based decorative coating

INOCULUM

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

Fungi:

Fusarium solani

Geotrichum candidum

Aspergillus terreus

Yeast

Rhodotorula rubra

Saccharomyces cerevisiae

Product	Biocide	Level (%)	Standard scoring system				
			Week 1	Week 2	Week 3	Week 4	Week 5
Water based paint	Unpreserved	---	0	3	3	3	3
Water based paint	Nipacide BIT 20	0.15	0	0	0	0	0
Water based paint	Nipacide BIT 20	0.2	0	0	0	0	0
Water based paint	CMIT free Isothiazoline blend	0.15	0	1	1	2	2
Water based paint	CMIT free Isothiazoline blend	0.2	0	0	1	1	1

Key: 0 - Complete Kill

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

1 - $<10^2$ Organisms /ml

3 - $>10^4$ Organisms/ml

Chemical compatibility:

Nipacide BIT 20 is compatible with most raw materials used in the manufacture of industrial products. Nipacide BIT20 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

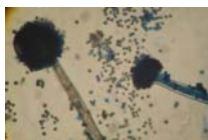
- In can challenge.
- Dry film
- Chemical analysis
- Identification
- Disinfectant testing
- Microbiological audits

Regulations and approvals:

FDA 21 CFR 175.105	Adhesives
FDA 21 CFR 176.170	Components of paperboard in contact with aqueous and fatty foods
FDA 21 CFR 176.180	Components of paper and paperboard in contact with dry food.
BfR XIV	Plastic dispersions
BfR XXXVI	Preservative for Paper and Board

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

September 2009



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