

# *Technical Data Sheet*

Clariant In-can Biocides



Exactly your chemistry.

# **Nipacide BIT 20.**

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

## Description;

Nipacide BIT20 is a glycol based solution; low toxicity biocide developed for the complete in-can protection of water based products. Nipacide BIT20 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**

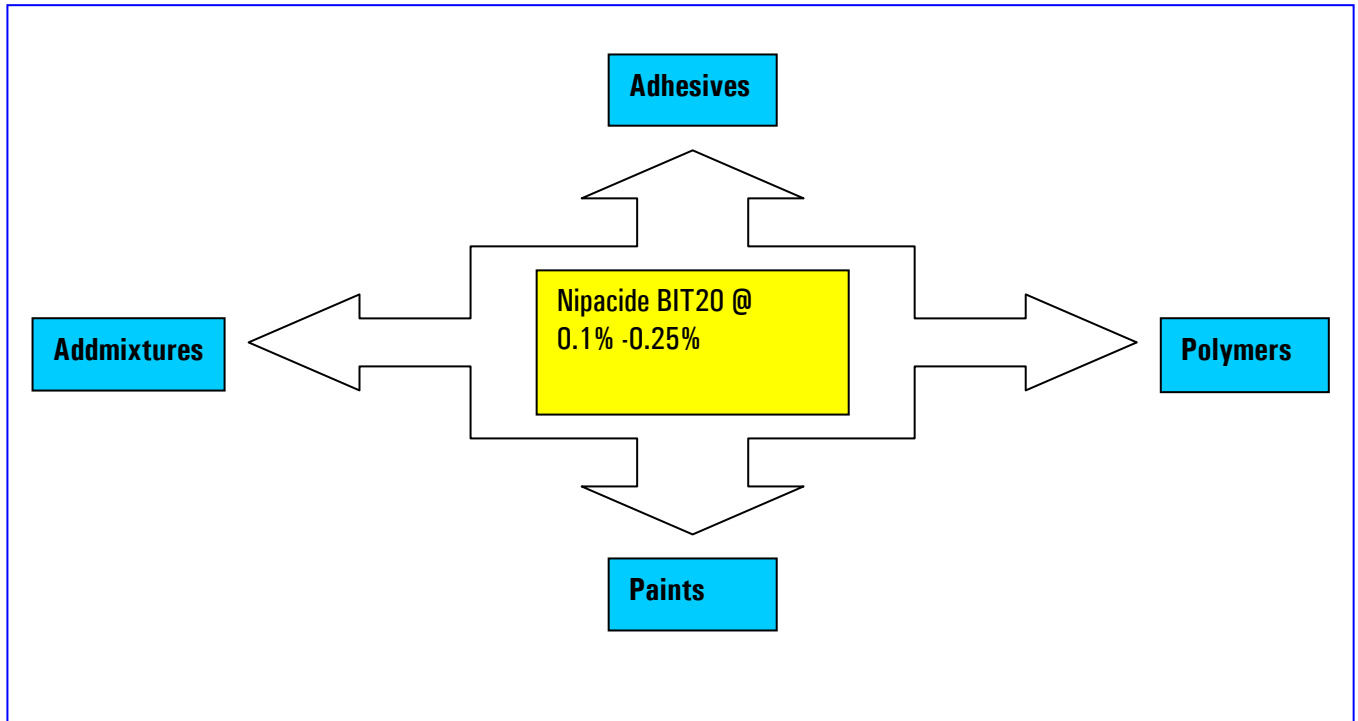
**In-Can degradation** in paints, polymer and adhesives as a result of bacterial and fungal contamination, can result in:

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

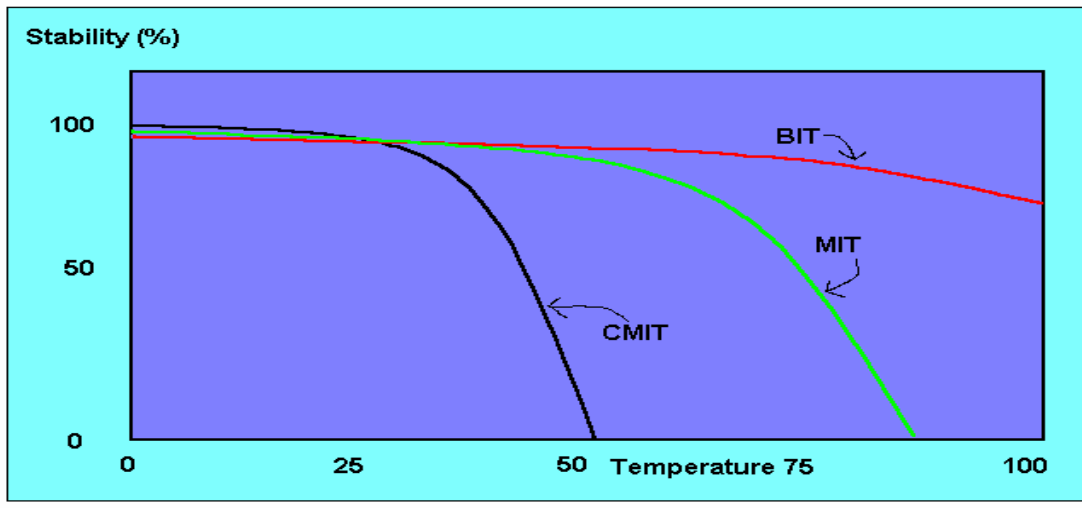
### Applications;

Nipacide BIT20 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 BIT20 should be the biocide of choice for products with pH > 8 and production temperatures of > 40 C.

Nipacide BIT20. Concentrations to be evaluated



## Temperature stability of Nipacide BIT compared to CMIT/MIT



### Use level;

Nipacide BIT20 should be evaluated in finished products at levels between 0.1% and 0.25%. Please note that Nipacide BIT20 above 0.25% requires R43 (causes sensitization by skin contact) hazard labeling.

### Microbiological data;

Nipacide BIT20 has a broad spectrum of activity which is demonstrated by the following MIC data.

MIC Levels	Organism	MIC (ppm)
	<b>Bacteria</b>	
	<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
	<b>Fungi</b>	
	<i>Aspergillus niger</i>	200
	<i>Penicillium mineoluteum</i>	150
	<i>Fusarium solani</i>	100
	<i>Geotrichum candidum</i>	500
	<b>Yeast</b>	
	<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 BIT20	0.15	0	0	0	0	1
Water based paint	Nipacide BIT20	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 BIT20	0.15	0	0	0	0	0
Water based paint	Nipacide BIT20	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 BIT20 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;

**FDA21 CFR 175.105** Indirect food additives: Adhesive and components of coatings-  
Adhesives

**FDA21 CFR 176.170** Indirect food additives: Paper and paperboard components-  
Components of paperboard in contact with aqueous and fatty foods

**FDA21 CFR 176.180** Indirect food additives: Paper and paperboard components-  
Components of paper and paperboard in contact with dry food.

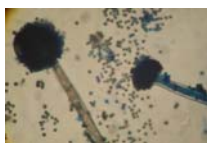
**FDA 21 CFR.300** Indirect food additives: Paper and paperboard components-Slimicides.

**BFR Rec X1V** Preservative for Polymer emulsions in food contact applications.

**BFR Rec XXXV1** Preservative for Paper and Board

**EPA Approval.** EPA registration number 49403-14

**WGK Classification 2:** water polluting



*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*