

# Antifog Masterbatch

For PP-Film

# MAXITHEN® PP 75770 AFAB

## CONTENT

- Description of MAXITHEN® PP 75770 AFAB Antifog Masterbatch
- Product Information
- Test Report “Cold Fog”
- Test Report “Hot Fog”
- “Antifog Evaluation Tests” – Description of Test Method

## PRODUCT DESCRIPTION

- Good Cold Fog and Hot Fog properties
- No deterioration of transparency at PP-films
- Contains additional synthetic Antiblock
- Food approved up to max. 8% dosage at PP-films according to BfR, Germany

### Note:

Use of slip additives based upon erucamide or oleamide will deteriorate the Cold and Hot Fog effect properties! Polymers under use must not contain these additives.

# MAXITHEN® PP 75770 AFAB

## PRELIMINARY PRODUCT INFORMATION

### MAXITHEN® PP 75770 AFAB

Antifogging/Antiblocking Combination Masterbatch  
for Polypropylene Film at Direct Food Contact Applications

FORM OF SUPPLY:	Masterbatch in pellet form, packed in UV stabilised 20/25 kg PE bags, on pallets, covered with a UV stabilised hood (standard packing). For colouring and stabilising the packing material, a combined MAXITHEN® colour / stabiliser masterbatch has been used to protect both, the packing material as well as the content.
COLOUR:	Whitish
ACTIVE AGENT:	Combination of a surface-active additive with synthetic silica
CARRIER-MATERIAL:	Polypropylene
APPLICATION:	MAXITHEN® PP 75770 AFAB is primarily used for packaging films in Cold-Fog and Hot-Fog applications to prevent the condensation of steam in form of small droplets and to support the formation of a thin, translucent film of water. Additionally, the blocking of the film is reduced.
DOSAGE RATE:	The typical dosage rate is between 5% and 10%. According to Recommendations BfR/Germany a maximum dosage of 8% must not be exceeded.
INFLUENCES:	The effectiveness and durability of the effect is considerably influenced by the choice of polymers, the film thickness, temperature and the usage conditions and should therefore be tested under practical conditions.
NOTE:	With higher addition amounts and temperatures about approx. 220°C an increasing evaporability is to be expected on account of the product construction. Therefore, appropriate preliminary tests are advised. Interactions between this product and other additives, e.g. antistatic or anti-blocking agents, lubricants and light stabilisers are possible. An influence on pre-treatment, printability, weldability or similar treatments during the production process cannot be excluded. Appropriate tests are suggested.

# MAXITHEN® PP 75770 AFAB

## PRELIMINARY PRODUCT INFORMATION

### MAXITHEN® PP 75770 AFAB

Antifogging/Antiblocking Combination Masterbatch  
for Polypropylene Film at Direct Food Contact Applications

#### STORAGE CONDITIONS:

Storage time of 6 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use.

All information in this product information sheet has been obtained from laboratory tests under ideal and closely controlled conditions. The information should act as a guide only and should not be construed as guaranteeing specific properties or suitability for a particular application. Therefore, trials by customers using their polymers and their conditions are highly recommended.

Gumpoldskirchen, January 2003

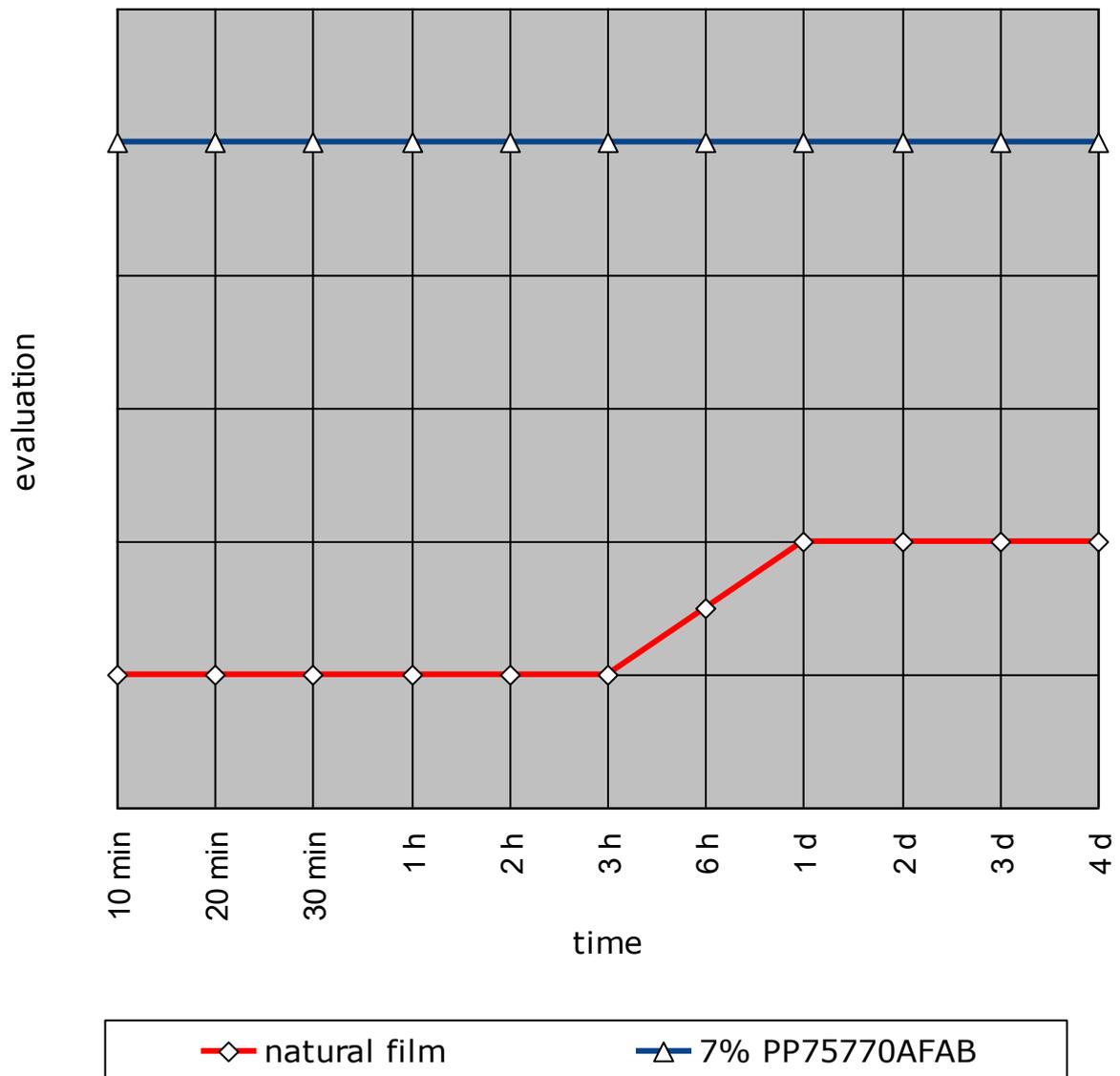
# MAXITHEN® PP 75770 AFAB

“Cold Fog” – Test

MAXITHEN® PP 75770 AFAB in PP-Films

“Cold Fog” – Test

Film measured after conditioning of 3 days



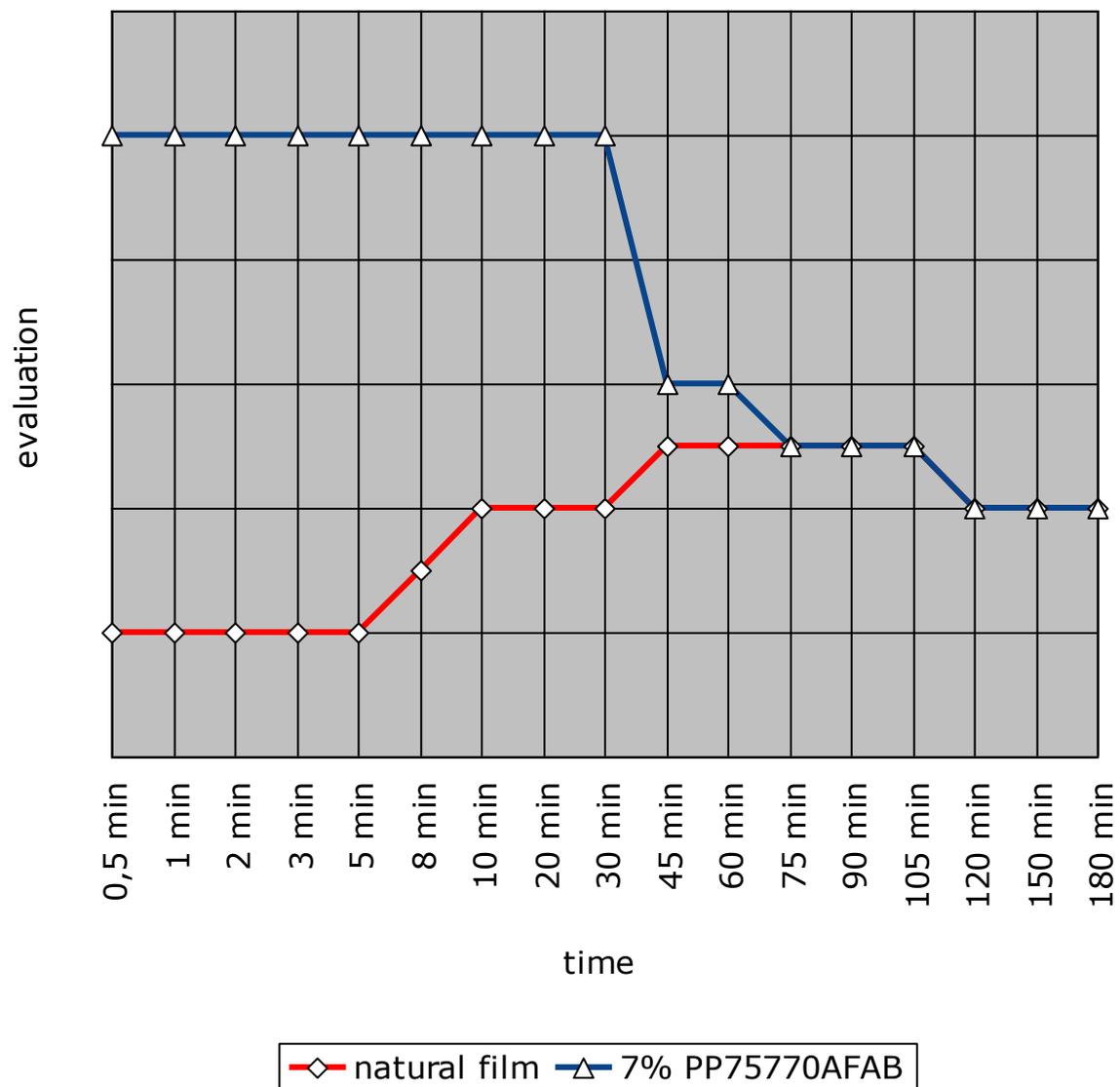
# MAXITHEN® PP 75770 AFAB

“Hot Fog” – Test

MAXITHEN® PP 75770 AFAB in PP-Films

“Hot Fog” – Test

Film measured after conditioning of 3 days



# MAXITHEN® PP 75770 AFAB

## Description of the Test Method

“Antifog evaluation tests for agricultural and food-packaging film”

### INTRODUCTION

Antifog agents are used in polymeric films for both food-wrapping and agricultural applications to ensure that any condensation of water vapour occurs as a uniform, invisible, layer of water rather than as a series of individual droplets that are not only aesthetically undesirable but also can produce damaging effects.

In food-wrapping films the main objectives are:

- to ensure that the film retains its transparency so that the packaged contents are clearly visible
- to protect the packaged food from degradation that may be caused by the droplets of water

In agricultural films they are:

- to ensure maximum light transmission into the enclosure
- to prevent large drops falling onto young plants, increasing damage and disease
- to prevent plant “burning” caused by the lens action of large drops

Gabriel-Chemie provides with this information commonly used visual test methods to test the effectiveness of antifog films for either in agricultural or food-wrapping applications.

### EVALUATION-TEST PROCEDURES

In these tests the appearance of the test specimens are judged according to the visual ratings given in table 1.

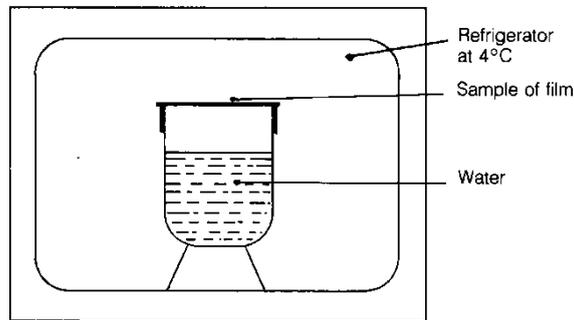
# MAXITHEN® PP 75770 AFAB

## TESTS FOR FOOD-PACKAGING FILMS

### The „Cold Fog“ test

Put tap water, 200ml, in a 250ml beaker and cover the top of the beaker with a sample of the test film. Place the beaker in a temperature-controlled cabinet at 4 °C (figure 1).

Figure 1: The “Cold-fog” test



Observe the appearance of the film, according to the ratings A to E described in table 1, for a total period of 1 week. Observations should be made at the time intervals shown in figure 2.

Figure 2: Performance recording intervals for the “Cold-fog” test

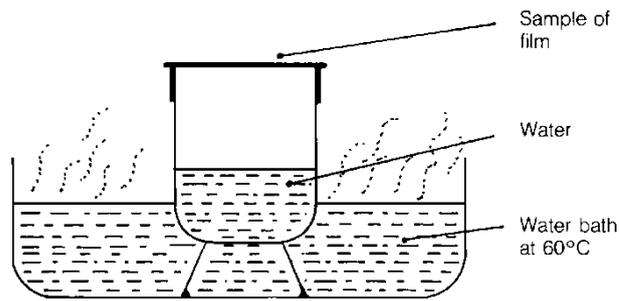
Appearance after	Minutes					Hours				Days				
	1	5	10	20	30	1	2	3	6	1	2	3	4	7
Rating (A to E)														

# MAXITHEN® PP 75770 AFAB

## THE „HOT-FOG“ TEST

Put tap water, 50ml, in a 250ml beaker and cover the top of the beaker with a sample of the test film. Place the beaker in a bath, containing water at 60 °C (figure 3).

Figure 3: The “Hot-fog” test



Using an accurate time, record any changes in the appearance of the film (using ratings A to E, described in table 1) for a period of 3 hours. Observations should be made at the time intervals shown in figure 4.

Figure 4: Performance recording intervals for the “Hot-fog” test

Appearance after	Seconds		Minutes									Hours						
	30	1	2	3	5	8	10	20	30	45	1.0	1.25	1.5	1.75	2.0	2.5	3.0	
Rating (A to E)																		

Table 1: The appearance ratings of films tested for antifog performance

Rating	Description	Comments	
A	very poor	opaque layer of small fog droplets	zero visibility, poor light transmission
B	poor	opaque or transparent layer of large droplets	zero visibility, poor light transmission
C	poor	complete layer of large transparent drops	poor visibility, lens effect, dripping
D	good	randomly scattered or large transparent drops	discontinuous film of water
E	excellent	transparent film displaying no visible water	completely transparent

**BUSINESS UNITS OF GABRIEL-CHEMIE GROUP:**



Building & Agriculture



Home & Lifestyle



Packaging for Industrial & Consumer Goods



Cosmetics Packaging



Food & Beverage Packaging



Medical



GABRIEL-CHEMIE Gesellschaft m. b. H.

Industriestraße 1  
2352 Gumpoldskirchen  
Austria

Tel. +43 2252 636 30 0

Fax +43 2252 627 25 0

info@gabriel-chemie.com

**WWW.GABRIEL-CHEMIE.COM**