MECOSTAT®-3

Antifogging, Antiblocking and Antistatic Coating Agent for Plastics

Food Packaging and Technical Applications

MECOSTAT®-3/723

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General

MECOSTAT-3/723 is a highly effective liquid coating material for the for the antifogging, antistatic and antiblocking finishing of plastic surfaces as well as for improving slip properties.

Antifogging agents prevent condensation on the surface of the plastics and bring clear visibility.

The resistance of the coating to temperature ensures that subsequent thermoforming can be performed without loosing the antifogging, antistatic or antiblocking properties.

Areas of Application

Antifogging, antistatic and antiblocking finishing of

- transparent thermoforming sheets
- transparent films for food packaging
- transparent films for packaging of farm products
- transparent moulded, injection moulded parts

Mode of Antifogging Operation

Antifogging performance hinges on two chemical capabilities: sheeting and hydrophilicity, (the compatibility of the molecules with water).

Water ordinarily condenses on a surface as tiny droplets, which refract light in such a way that you cannot easily see through the surface. If the surface is treated with an antifogging agent, you get a vastly different picture.

The antifogging agent molecules are hydrophiles, so they dissolve in the water droplets. And as they do, they lower the surface tension of the droplets. Droplets spread on the surface and form a continuous film. This film refracts light the same way as a dry surface with the result of a clear visibility.

Typical Properties of the Coating with MECOSTAT-3/723

- long term antifog, antiblock and antistatic finishing for several years
- surface resistance as far as $1 * 10^{10}$ Ω at standard climatic conditions
- strong adhesion of the coating agent to the plastic surface resulting in high stability against physical effects such as friction etc.
- the coating is temperature resistant resulting in unproblematic thermoforming without impairing the antifog, antiblock or antistatic finish
- the slip properties of the plastic surfaces are improved by the coating
- striation-free highly transparent coating
- no migration into the liquid filled, no accumulation during recycling
- usable in the packing industry for foodstuffs according to EC-Directives and US FDA food additive regulations
- **MECOSTAT-3/723** is high yielding and therefore keeps down costs of antifog, antiblock and antistatic finish
- problem-free recycling of coated plastics

Processing Directions

- the following processes are suitable for coating: immersion bath, felting, roller application, application by flexographic or gravure printing, spray coating, rotor spraying coating (the appropriate processes are dependent on the application purpose)
- coating quantity: 1 to 3.5 g per sqm (wet coating amount)
- the coated surface must be completely dry before further processing or rolling up the sheet (if required, drying with warm air)
- **MECOSTAT-3/723** is supplied as a ready for use solution
- machine parts which come into contact with **MECOSTAT-3/723** should be made of corrosion proof materials
- a combination of **MECOSTAT-3/723** with antistatic additives is not recommended because of possible reactions
- depending on the particular application corona pretreatment is recommended (on Polyolefines and Polystyrene)
- for detailed processing and safety information, please refer to the appropriate safety data sheet
- due to the large number of applications and processing procedures we would like to point out that corresponding tests have to be performed by the customer to make sure that there will be no incompatibility with the raw materials, additives and the processing procedures

Safety

MECOSTAT-3/723 as well as the raw materials contained in it comply with the appropriate EC-Directives and with the US FDA food additive regulations.
MECOSTAT-3/723 is environment-friendly and easily biodegradable.

Service

We offer comprehensive technical support with regard to not only the choice of the suitable type of material for your application but also to the coating systems.

Our Application Technology Department is at your disposal for the design of optimal application processes as well as for preparing suggestions for adapting installations already in use.

Calculation of the consumption rate

consumption rate of MECOSTAT-3 per kg plastic

$$\text{consumption MECOSTAT per kg plastic [g]} = \frac{\text{coating rate/m}^2\text{ [g]} \times 1000}{\text{sheet thickness [µm]} \times \text{spec. weight of plastic [g/cm}^3\text{]}}$$

coated sheet per kg MECOSTAT-3

$$\text{coated sheet per kg MECOSTAT [kg]} = \frac{\text{foil thickness [µm]} \times \text{spec. weight of plastic [g/cm}^3\text{]}}{\text{coating rate/m}^2\text{ [g]}}$$

Typical value of spec. weights of different plastics

The exact specific weight depends on both, the plastic formula used and on the additives used. Therefore, the given values are only approximated values.

APET	:	1.35 g/cm³
PVC	:	1.42 g/cm³
PP	:	0.93 g/cm³
PETG	:	1.17 g/cm³
LDPE	:	0.95 g/cm³
HDPE	:	0.92 g/cm³
PS	:	1.10 g/cm³
ABS	:	1.12 g/cm³
PC	:	1.20 g/cm³
PTFE	:	2.16 g/cm³
PMMA	:	1.18 g/cm³
PUR	:	1.25 g/cm³