

Anti-static additive for polypropylene (PP) films



PRODUCT NAME

Einar® 411

APPLICATION

Anti-stat for R-PP,
and H-PP

The plant-based, food-grade anti-stat solution for PP films

Einar® 411 is a plant-based, food-grade anti-static additive custom-designed for use in all PP grades. This long-lasting anti-static additive is the perfect alternative to ethoxylated amines and amides as it is able to match these while being safe enough to eat.

This optimised anti-stat has been developed specifically for challenging applications such as PP film while also meeting the high demands of electronics packaging.

KEY FEATURES

- ✓ Highly effective replacement for anti-static ethoxylated amines and amides
- ✓ An optimised blend of mono- and diglycerides with selected fatty acid profiles, made from vegetable oils
- ✓ An internal anti-static additive for additive masterbatches based on polypropylene
- ✓ Worldwide regulatory approval for food-contact applications
- ✓ Available in pellet form
- ✓ Produced in CO₂-neutral factories

KEY BENEFITS

- ✓ Prevents dust attraction to plastic articles
- ✓ Prevents electrical discharge during filling and loading of plastic packaging
- ✓ Can be used for all polypropylene grades by adjusting the dosage level
- ✓ No worries when used in food-grade applications
- ✓ No adverse effects on mechanical, optical, and barrier properties
- ✓ Enables clean and dust-free polypropylene packaging in production and final application
- ✓ Consultancy and technical evaluations available from our applications team

Einar® 411 for PP film anti-stat applications

Einar® 411 offers excellent performance in a very broad range of PP applications. In most random and block copolymer films it will provide a good and sufficient performance at low loading levels. In homo polymer, a highly crystalline material where anti-stat migration is low, anti-stat concentrations need to be in the higher end of the recommended loading level of 0.1 – 0.4%.

In coextruded or laminated packaging films, the anti-stat is often added to a very thin section of the entire film and therefore, the anti-stat must be a very reliable and efficient performer.

Einar® 411 will deliver the performance you need and has proven to deliver excellent performance when used in the thinner film sections of a sealing layer.

Product details

Physical/chemical properties:	monoglycerides	min. 70%
	free fatty acids	max. 1.5%
	free glycerol	max. 1%
	melting point	approx. 60°C
	colour	white
	form at 25°C	pellets
Storage conditions:	Should be stored in a cool and dry place in tightly closed packaging	
Packaging:	20 kg multiply paper bag with an inner polyethylene bag (35 bags per pallet) or 500 kg anti-static polyethylene big-bag	
Product form:	Einar® 411 comes in pellet form	
Total shelf-life:	min. 24 months	

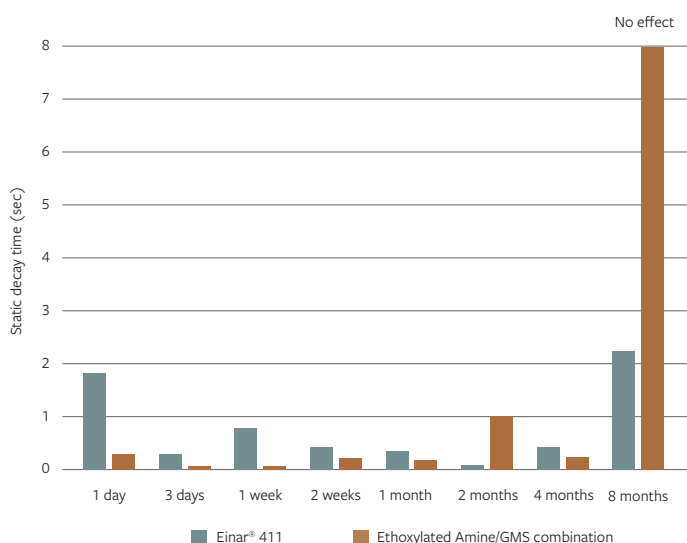
Guidelines for use

The product should be incorporated into the polymer matrix via a masterbatch or by direct addition at the resin manufacturer.

ANTI-STAT PERFORMANCE

IN 25 µM RANDOM PP CAST FILM

Additive concentration is 0.3%, measured at 23 °C, 50% RH.



Einar® 411 is an excellent performer in PP film with both immediate and long-term performance.

Sustainable solutions for the polymers industry

Health and Safety

Einar® is identified as non-toxic and is not expected to cause irritation to the skin, eyes or lungs. Detailed MSDS is available on request.

Legal status and other regulatory information

Einar® 411

- is a dual use additive for use in food (E471) and polymers
- complies with the purity requirements of FAO/WHO regarding food additives (JECFA)
- is manufactured in accordance with Danish- and EU regulations and under hygienic conditions
- may be used in plastic materials and articles intended to come into contact with foodstuffs in accordance with Regulation (EC) No. 10/2011 on plastic materials and articles intended to come into contact with food
- is GRAS according to FDA 21 CFR 184.1505, and may in accordance with FDA 21 CFR 174.5 be used as components of articles intended for contact with food
- Roundtable of Sustainable Palm Oil (RSPO) certificate available on request with order
- Kosher & Halal certificates and REACH registration available on request

**To find out more or to order samples of Einar® 411,
visit polymers.palsgaard.com or contact us via polymers@palsgaard.com**

BRINGING GOOD THINGS TOGETHER

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