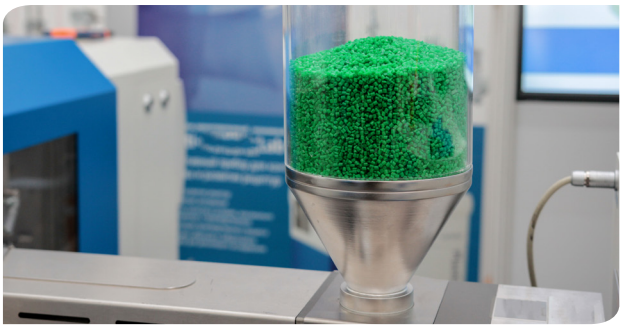
Armostat®

Antistatic additives

Nouryon

Armostat

Our line of Armostat products is a series of high quality, high performance antistatic agents used as plastics additives. Armostat products improve the appearance and quality of plastics, reduce safety hazards and support efficient processing.



Why the need for antistatic additives?

Plastics have high electrical insulating properties and thus are easily charged with static electricity on their surface. The static electricity can be generated by friction during extrusion or molding or even by friction with ambient air while immobile. This leads to many undesirable characteristics such as dust accumulation, spark formation, damage to integrated circuits in electronic equipment, production delays due to clumping or clinging, and interference with sound production.

Later in the economic life of the polymer, further interference may occur for users down to the retail level. Who would want to handle material that generates static and clings together or choose a dusty-looking electronics package?

Internal antistatic for long-lasting protection

To combat these issues, we believe that an internal chemical antistatic additive is the best option for plastics producers and processors where long-term protection is important.

An internal antistatic additive is compounded into the polymer matrix in its molten state. When the matrix solidifies, the antistat molecules migrate to the surface until an equilibrium position is reached. If the surface antistat molecules are ever washed off, other antistat molecules anchored in the polymer matrix will migrate to the surface until the original antistat concentration on the surface is regenerated.

Our Armostat antistat solutions

We offer a range of ethoxylated amines (both animal and vegetable grade) and a very pure lauric diethanol amide (LDA) as an amine-free option. In addition, we supply high-performance dry concentrates for masterbatch manufacturers, compounders and fabricators who would prefer an easy-to-handle and cost-effective alternative.

Standard long-acting antistatic agents

Armostat ethoxylated amines are widely used as antistat agents in PE, PP, ABS and other polystyrenics. Armostat products come in a variety of alkyl chain lengths and levels of saturation, which in turn determines their volatility, melting point and migration speed. Armostat ethoxylated amines are thermally stable and low color. All Armostats listed, with noted exception, are available globally and approved for indirect food contact use.

We also offer Armostat 2002, which is an excellent amine-free antistat compatible with a wide range of polymers. Unlike ethoxylated amines, which become more effective the more humid the environment, lauric diethanol amides also function well in low-humidity conditions. Armostat 2002 is a very popular additive in electronics packaging and food packaging.

	Description	Physical form	Thermal stability	Viscosity at 60°C mPa s	Benefits	Region availability
Armostat 300	Ethoxylated amine (tallow)	paste	243	33	Great for film applications	global
Armostat 400	Ethoxylated amine (coco)	liquid	207	24	Great for film applications High purity, low color	global
Armostat 410LM	Ethoxylated amine (coco)	liquid	207	24	Catalyst stopper	global
Armostat 600	Ethoxylated amine (hydrogenated tallow)	solid	241	36	Great for applications requiring high processing temperatures	global, excl US and Canada
Armostat 600V	Ethoxylated amine (palm)	solid	241	36	Vegetable-based alternative to Armostat 600 High purity, low color	Asia
Armostat 700	Ethoxylated amine (oleic)	liduid	240	30	Liquid alternative to Armostat 300 Low melting point	global
Armostat 1800	Ethoxylated amine (stearic)	solid	245	38	Great for applications requiring high processing temperatures Kosher and halal certified	global
Armostat 2002	Lauric diethanol amide	pellets	210	140	Amine free Great for low humidity environments and highly filled polymers	global

Product selection and recommended usage (in %) guide

	Armostat 300	Armostat 400	Armostat 600 / V	Armostat 700	Armostat 1800	Armostat 2002
LDPE film	0.1	0.1-0.15	0.1-0.15	0.1-0.15		0.2-0.5
LLDPE			0.1-0.15			
HDPE film	0.15-0.2	0.15-0.2		0.15		0.2-0.5
HPDE IM	0.15-0.2	0.15-0.2		0.15		0.2-0.5
PP film		0.15				
PP IM homo	0.3	0.15-0.2	0.1-0.15	0.1-0.15	0.1-0.15	0.2-0.5
PP IM block co		0.1		0.15		
PP IM random co		0.15		0.15		
BOPP film	0.15-0.2	0.15	0.15-0.2	0.15	0.1-0.5	0.4-0.8
ABS		1.5-4	1.5-3	1.5-3	1.5-3	
PS		2-4		2-4		
HIPS		1.5-2.5		1.5-2.5		
SAN		1-2	1-2	1-2	1-2	

Highlighted are the preferred polymer and usage % combination

High performance concentrates

We offer high performance convenience blends: free flowing granules and pellets containing up to 80% of antistat active content loaded onto a polymer carrier. Sacrifice none of the performance while saving on money and time!

Often dosing of liquid or paste material requires special melting, pumping and injection equipment. Dry high performance concentrates eliminate these extra steps and are non-caking. They can be easily dosed using conventional feeders without any additional investment.

Antistatic high performance concentrates

Product name	Recommended use	Physical form	Origin of raw materail	Active content (%)	Packaging
PE					
Armostat 300-XE50	Long-lasting general purpose antistatic action for LDPE and LLDPE	Free-flowing granules	Animal	50	25 kg PE bag in cardboard box
Armostat 300-XE75	Long-lasting general purpose antistatic action for HDPE	Free-flowing granules	Animal	75	25 kg PE bag in cardboard box
PP					
Armostat 300-XP80	Long-lasting general purpose antistatic action for PP	Free-flowing granules	Animal	80	25 kg PE bag in cardboard box
Armostat 400-XP75	Long-lasting general purpose antistatic action for PP	Free-flowing granules	Vegetable	75	25 kg PE bag in cardboard box
Armostat 600-XP75	Long-lasting general purpose antistatic action for BOPP	Free-flowing granules	Animal	75	25 kg PE bag in cardboard box
Armostat 1800-XP75	Long-lasting general purpose antistatic action for BOPP	Free-flowing granules	Vegetable	75	25 kg PE bag in cardboard box
PS					
Armostat 400-XS50	Long-lasting general purpose antistatic action for PS and ABS	Free-flowing granules	Vegetable	50	25 kg PE bag in cardboard box

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About Nouryon

We are a global specialty chemicals leader. Markets worldwide rely on our essential chemistry in the manufacture of everyday products such as paper, plastics, building materials, food, pharmaceuticals, and personal care items. Building on our nearly 400-year history, the dedication of our 10,000 employees, and our shared commitment to business growth, strong financial performance, safety, sustainability, and innovation, we have established a world-class business and built strong partnerships with our customers. We operate in over 80 countries around the world and our portfolio of industry-leading brands includes Eka, Dissolvine, Trigonox, and Berol.

For more information visit **surfacechemistry.nouryon.com**

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