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Irgastat® P

Irgastat P 16, Irgastat P 18 FCA, Irgastat P 20, Irgastat P 22 Permanent Antistatic Additives

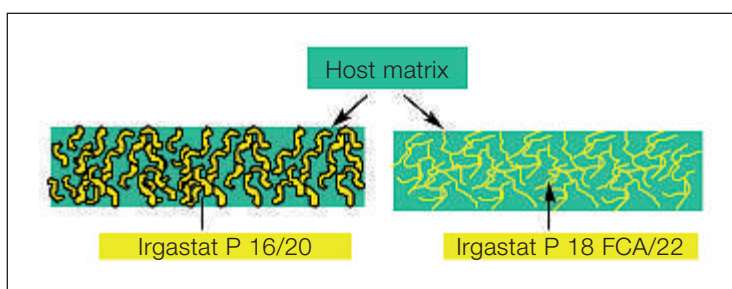
Characterization

Irgastat P are polymeric systems based on polyamide/polyether block amides

Applications

Irgastat P is recommended, where a permanent antistatic effect is sought, in applications such as electronic and industrial packaging, housings and parts of business machines. Products can be used in thermoplastic polymers, transparent film, fiber or molded applications. Outdoor applications require testing to determine the suitability of Irgastat P under UV-exposure conditions.

Irgastat P products are polymeric materials incorporated as melt additive. Electric resistivity is reduced by formation of a conductive percolating network. Irgastat P 18 FCA and P 22 is forming a more distinct fiber network as opposed to Irgastat P 16 and P20 thus requiring lower addition levels. Irgastat P 16 and P 20 can generally be added at higher levels thus providing a larger processing window:



High shear forces or post orientation of the polymer might inhibit development or damage the conductive network and therefore negatively impact performance.

Features/benefits

Permanent, non-migratory antistatic agent. Thermally stable and effective at low humidity (< 10 %). Immediately effective after incorporation. Surface resistivity down to 10⁸ Ω/sq can be achieved, depending on substrate and processing.

Characteristics

- Colorless
- Transparent

- Non sparking
- No dust /micro contamination
- Permanent

- Humidity independent

- No migration

- Network forming

Benefits

Permits use of color codes
 Applicable in films and transparent housing
 No grounding required
 Suitable for clean room applications
 Effect over the useful life of high value applications
 Guaranteed effect in critical applications
 No content contamination, no printing problems
 Immediate effect, no impairment of mechanical properties

Product forms

Code: Irgastat P
 Appearance: White to slightly yellowish granules

Guidelines for use

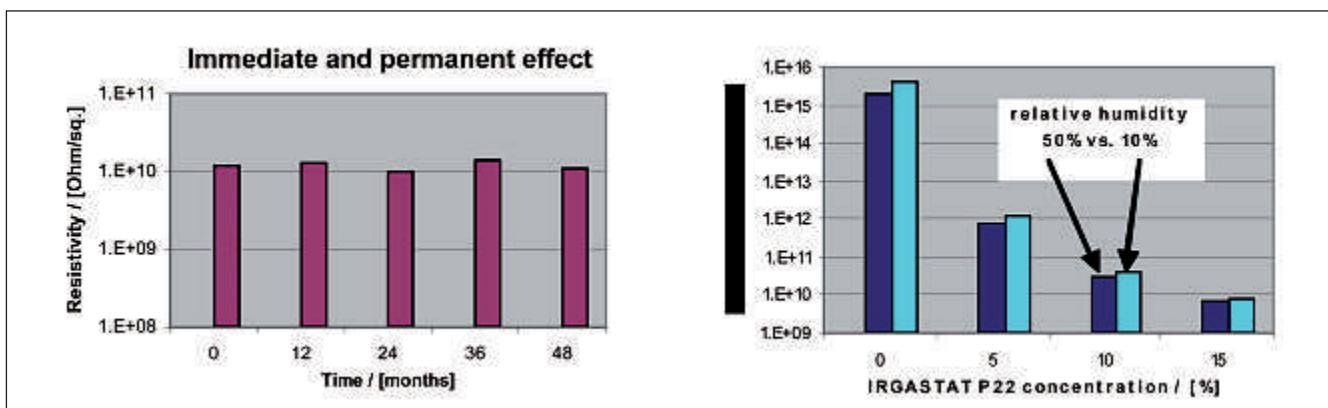
Irgastat P 16 and P 20 recommended use levels are 8–25 % (10¹²–10⁹ Ω/sq).
 Mainly for engineering plastics, due to relatively high loading levels a pre-compounding step is recommended. The use of 2–4 % Lotader AX 8900 can support dispersion.

Irgastat P 18 FCA and P 22 recommended use levels are 4–15 % (10¹¹–10⁸ Ω/sq). Mainly for polyolefins, no pre-compounding step required, however, system performance is sensitive to processing conditions (shear, temperature etc.). The use of compatibilizers can support dispersion mainly in large molded articles.

Physical Properties

		Irgastat P			
		16	20	18 FCA	22
Surface resistivity (Ω/square)*	ASTM D257	3 10 ⁹	1.5 10 ⁹	8 10 ⁷	2 10 ⁷
Volume resistivity (Ω x cm)*	ASTM D257	2.5 10 ⁹	2 10 ⁹	3 10 ⁸	4 10 ⁷
Charge decay (sec)	MIL B-81705	< 1	< 1	<0.02	<0.02
Refractive index (22 °C)		1.502	1.508	1.501	1.505
Melting point (°C)		158	204	176	220
Water abs. [%] @ 23 °C – in water	ASTM D3418	48	120	5	42
MFI [g/10min]	230 °C/2.16kg			17–21	23–26

* measured on pure IRGASTAT P films



(@ 50 % relative humidity; 21.5 °C; acc. Mil. Spec. B-81705C)

Charge Decay

Concentration/[wt %] Irgastat P 18 FCA	Charge Decay Time (5kV → 50 V)/[sec] At different thicknesses		
	150 µm	100 µm	50 µm
0	N/A ¹⁾	N/A ¹⁾	N/A ¹⁾
15	0.13	0.12	0.13
20	0.02	0.02	0.02

¹⁾ Charge of +5 kV could not be applied on unmodified polymer surface

Handling & Safety

Irgastab P exhibits a very low order of oral toxicity and does not present any abnormal problems in its handling or general use.

Detailed information on handling and any precautions to be observed in the use of the product(s) described in this leaflet can be found in our relevant health and safety information sheet.

Note

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