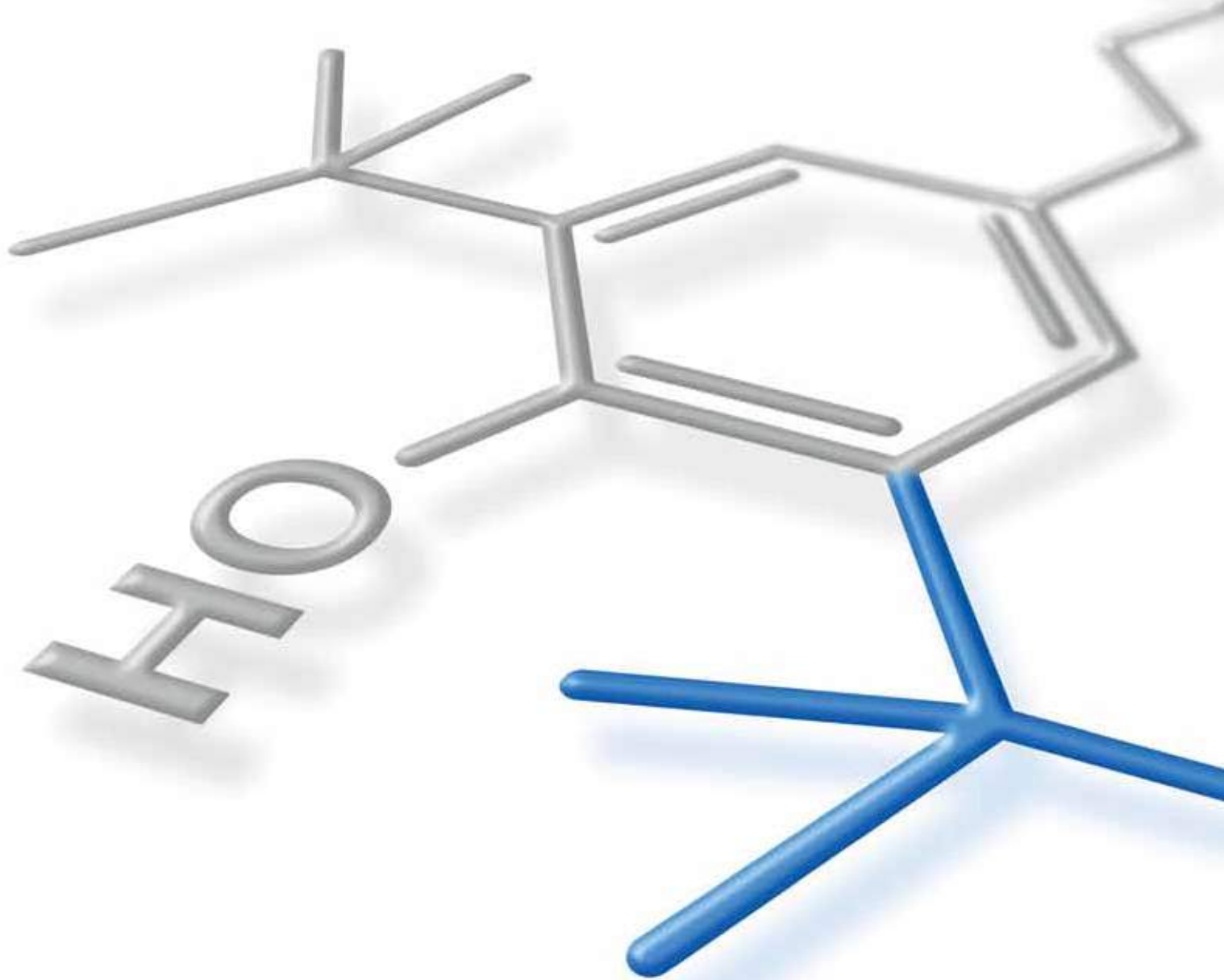


# Process and Thermal Stabilizers for Polyolefins



Plastic Additives

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Product form	Molecular weight (g/mol)	Melting point °C	PP molding		PP extrusion					PE molding		Pipe
			General	Filled	Pipe/sheet/profiles	Yarn, BCF	Nonwoven	Tapes/monofilaments	Film	HD-, LLD-PE general	LLD-PE rotomolding	

#### Processing & thermal stabilizers

Irgafos® 126	P	604	≤160	□	□	□	□	□	□	□	□		□
Irgafos® 168	P, FF	647	183 – 186	■	■	■	■	■	■	■	■	■	■
Irganox® 1010	P, FF	1178	110 – 125	■	■	■			■	■	■	■	■
Irganox® 1035	P, FF	643	63 – 78		□								
Irganox® 1076	P, FD, M	531	50 – 55	□	□	□					□	□	□
Irganox® 1330	P	775	240 – 245	□	□	■			■	□			□
Irganox® 1425 WL	P	NA	NA		□				□	□			
Irganox® 3114	P	784	218 – 223	□	■	□	□	□				□	□
Irganox® B 215	P, FF	NA	NA	■	■	■			■	■	■	■	□
Irganox® B 225	P, FF	NA	NA	■	■	■			■	■	■	□	■
Irganox® B 501 W	P, FF	NA	NA		□		□		□	□			
Irganox® B 561	P, FF	NA	NA	□	□	□			□	□	■	□	□
Irganox® B 900	P, FF	NA	NA								□		
Irganox® E 201	L	431	1 – 4	□	□					□	□	□	
Irganox® MD 1024	P	553	221 – 232	□		□							■
Irganox® PS 800	FL	515	39 – 41								□	□	□
Irganox® PS 802	FL	683	64 – 67	■	■	■					□	□	□
Irganox® XT 500	P	NA	NA	□	□	□			□	■	□	□	
Irgastab® FS 210	FF	NA	NA	□			□	■			□		
Irgastab® FS 301	FF	NA	NA	□	■	□	■	■	□		□	□	
Irgastab® FS 410	FF	NA	NA	□		□	■	■			□		
Irgastab® FS 533	FF	NA	NA	□			■	■					
Irgastab® FS 811	FF	NA	NA	■	■								
Irgastab® RM 68	FF	NA	NA									■	
Hycite® 713	P	NA	NA	□	□	□	□	□	□	□	□	□	□

Hycite®: Registered trademark of Clariant International Ltd.

NA: Not Applicable

## BASF product forms

#### Food Contact Approval (FCA) Indicator

- no FCA, can be used
- no FCA, recommended
- FCA in at least one country, can be used
- FCA in at least one country, recommended



FD/FDL Free Flowing Dust Free



FF Free Flowing

PE extrusion

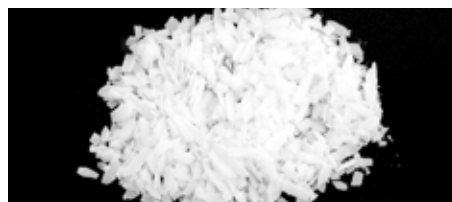
PE, PE-x cable	Tapes/monofilaments	HDPE film	LD-/EVA, LLD-PE film	LD-, LLD-PE, EVA agro
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Key attributes

PE, PE-x cable	Tapes/monofilaments	HDPE film	LD-/EVA, LLD-PE film	LD-, LLD-PE, EVA agro	Key attributes
		■	□		High performance, highly compatible phosphite; low color
■	■	■	■	■	Hydrolytically stable phosphite, maintains color properties
■	■	■	□	□	High molecular weight, phenolic antioxidant (AO); extends long-term thermal stability (LTTS)
■					Phenolic AO for cross-linked or carbon black containing systems (i.e. cable compounds)
□	□	□	■	■	Highly compatible, low-color phenolic AO
	□				High molecular weight extraction resistant phenolic AO
					Phenolic AO with high extraction resistance; polyethylene wax carrier
□					Non-discoloring phenolic AO; high extraction resistance
	■	■	□	□	Synergistic phenol/phosphite blend, medium phosphite content, for a balanced processing and LTTS
	■	■	□	□	Synergistic phenol/phosphite blend with extended LTTS
	□				Synergistic phenol/phosphite blend for PP fiber
	□	■	□	□	Synergistic phenol/phosphite blend for demanding process conditions
	□	□	■	■	Synergistic phenol/phosphite blend with high phosphite level
		□	□	□	Vitamin E, a high efficiency phenolic AO with consumer appeal and excellent MFI stability
■					High performance phenolic AO and metal deactivator (Cu inhibitor)
■					Synergist extending the LTTS of phenolic AOs
□					Synergist extending the LTTS of phenolic AOs
					Stabilization system for BOPP films
					Phenol-free basic LTTS; low color; gas fade resistant
□	□	□	□	□	Phenol-free basic LTTS; low color; gas fade resistant
					Phenol-free basic LTTS; low color; gas fade resistant
					Phenol-free basic LTTS; gas fade resistant
					Phenol-free basic LTTS
					Stabilization system for rotomolded applications with improved processing window
□	□	□	□	□	Acid scavenger



P Powder



FL Flakes

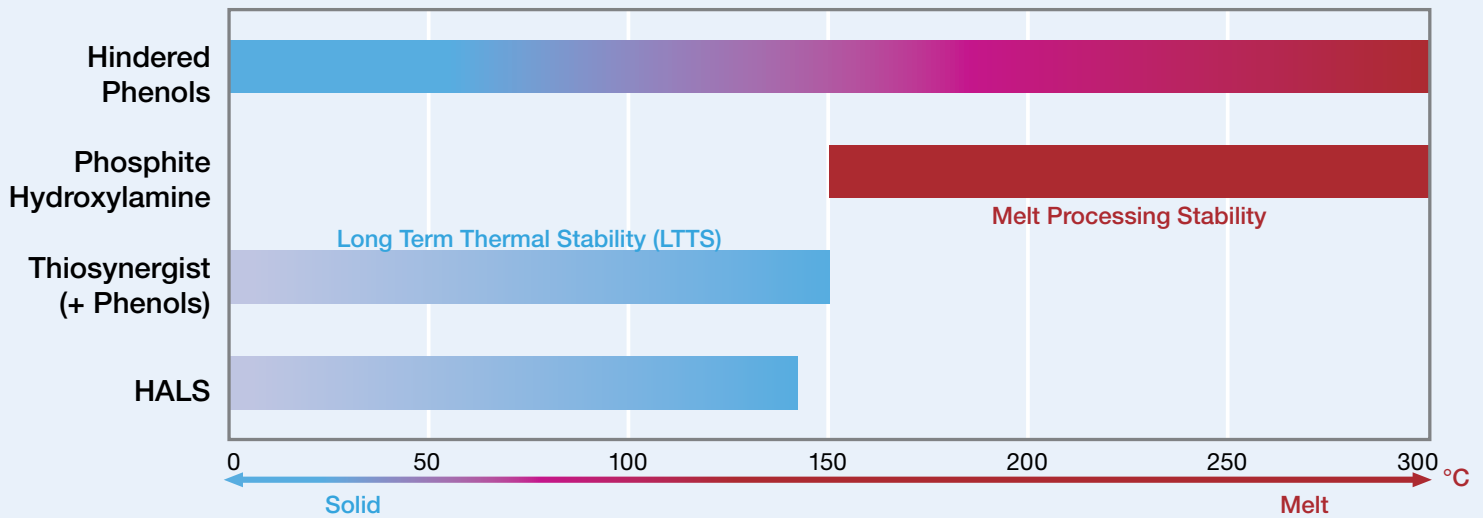
Further Product Forms

- AD Aqueous Dispersion
- AR Attrition Resistant
- DF Dust Free, Free Flowing
- FB Free Flowing Beads
- G Granule
- L Liquid
- LD Low Dust
- M Melt

# Processing and thermal stabilization of plastics – Type of stabilization and domain of activity

Stabilizers are used at various stages in a polymer life-cycle. They are primarily used to prevent oxidation and degradation of polymer chains. Stabilizers play an imminent role in all melt processing steps of polymer resins where temperatures well

above 150°C are reached, though for limited periods of time. Ultimately, stabilizers will maintain the mechanical and aesthetic properties of plastic items and enhance their long term thermal stability.



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