

ADK STAB

Polymer Additives

Products List



MIE PLANT (ISO 9001, ISO 14001 and OHSAS 18001 factory)



POLYMER ADDITIVES R&D LABORATORY





ADK STAB POLYMER ADDITIVES listed in this brochure are our main products which are the result of our experience and knowledge from over 30 years in various polymer fields. An additive should be selected depending on the target polymer and application. An appropriate selection of additives will modify various characteristics of the polymer (such as mechanical properties, durability, and transparency) and shall answer to your demands.

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ADK STAB HINDERED PHENOLS

Hindered phenols are radical scavengers which prevent thermal degradation of many organics and polymeric materials. Its effectiveness increases in combination with phosphites, thioethers and light stabilizers.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
AO-20	HO N N O TBU	White powder M.P. 220~222 C M.W.784	Excellent resistance to discoloration Low volatility and excellent retention within the polymer	Approved Approved [B]NM-0095
AO-30	27676-62-6 OH HO TBU HO TBU OH 1843-03-4	White powder M.P. 183~185 C M.W.545	Highly efficient radical scavenger due to sterically-less-hindered structure Excellent resistance to extraction For polymers which contain unsaturated bonds such as ABS and elastomers	Approved Approved [B]NM-0893
AO-40	HO TBu TBu	White powder M.P. 210~214°C M.W.383	Highly efficient radical scavenger due to sterically-less-hindered structure Good compatibility with many polymers For polymers which contain unsaturated bonds such as ABS and elastomers	Approved — [B]NM-1038 20kgB/G
AO-50 AO-50F	tBu O C 18H 37	White powder (F: granule) M.P. 51~54°C M.W.531	Excellent compatibility with many polymers Excellent resistance to discoloration	Approved Approved [B]NM-0894 20kgB/G
AO-60 AO-60G	tBu	White powder (G: granule) M.P. 110~130°C M.W.1178	Very low volatility and excellent resistance to extraction due to high M.W Excellent processing and long-term heat stabilization	Approved Approved [B]NL-0972 20kgB/G
AO-80	тви но о о о о о о о о о о о о о о о о о о	White powder M.P. 110~120°C M.W.741	Highly efficient radical scavenger Exceptional processing and long-term heat stabilization Excellent resistance to discoloration, particularly against NOx gas	Approved Approved [B]NL-1309 20kgB/G
AO-330	tBu OH tBu OH 1709-70-2	White powder M.P. 243~245°C M.W.775	Low volatility Excellent resistance to extraction from the polymer, particularly in hot water	Approved Approved [B]NL-1119 20kgB/G

^{*}For detail information, please contact us.

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ADK STAB PHOSPHITES

Phosphites are excellent peroxide decomposers, halogen acceptors and masking agents. Phosphites provide good heat stability, color stability, process stability and weatherability to polymers.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
PEP-8	$C_{18}H_{37}O-P_{O}$ O $P-OC_{18}H_{37}$ 3806-34-6	White flake Softening point 50~62 C M.W.733	*Effectively reduces discoloration during processing *For use in applications which require reduced discoloration	Approved — [B]NL-3037 15kgC/S
PEP-36A	**************************************	White powder M.P.234~240°C M.W.633	Exceptional process stability Effectively reduces discoloration during processing For use in applications which require high-temperature processing and/or reduced discoloration	Approved Approved [B]NM-1310 20kgB/G
HP-10	tBu P-O-C ₈ H ₁₇ tBu P-O-C ₈ H ₁₇ 126050-54-2	White powder M.P.146~152°C M.W.583	Excellent process stability Excellent compatibility with low-polar polymers such as PE and elastomers	Approved — [B]NL-1428 15kgC/S
2112 2112RG	$P \xrightarrow{tBu} tBu $ $31570-04-4$	White powder (RG: granule) M.P.180~190°C M.W.647	Very common phosphite with the highest resistance to hydrolysis among commercial phosphites	Approved Approved [B]NM-0846 20kgB/G

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
1178	$P - \left(O - \left(C_9 H_{19}\right)_3\right)$ 26523-78-4	Clear liquid Vis. 4000mPa·s M.W.689	Low-cost liquid phosphite which is called Tris(nonylphenyl)phosphite For PS, ABS, PVC, elastomers, etc	 [B]NL-0092 200kgD/M
1500	RO $P-O$ RO $R: C_{12}-C_{15}$ Alkyl 96152-48-6	Clear liquid Vis. 1200mPa·s M.W.approx. 1112	Higher heat stability and resistance to hydrolysis than ADK STAB 1178	Approved — [B]NL-0094 190kgD/M
С	$O \rightarrow P - O - C_8 H_{17}$ 15647-08-2	Clear liquid Vis. 10mPa·s M.W.346	Very common alkylarylphosphite For PS, elastomers, etc	
135 A	$\left(\begin{array}{c} & \\ & \\ \end{array}\right)$ P-O-C ₁₀ H ₂₁ 26544-23-0	Clear liquid Vis. 15mPa·s M.W.374		
3010	$P - \left(O - C_{10}H_{21}\right)_3$ 25448-25-3	Clear liquid Vis. 20mPa•s M.W.503	Trialkylphosphite Resistance to discoloration during/after processing For use in applications which require high-temperature processing	
ТРР	P—(O—) ₃	Clear liquid Vis. 18mPa·s M.W.310	Very common arylphosphite Resistance to discoloration during/after processing For PS, PU, elastomers, etc	

●Usage note
Phosphite tend to be hydrolyzed when exposed to humidity.
Please store in the original container securely under cool and dry conditions.
After opening, please use immediately.



ADK STAB BLEND TYPE ANTIOXIDANTS

ADK STAB A-series is the development of speciality blends of phenolic antioxidants and phosphites for the polymer industry and it could be used in a wide variety of applications. The ratio of phenolic antioxidants and phosphites can be tailored to meet specific requirement.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
A-611 A-611RG	AO-60/2112=1/1	White powder (RG: granule)	· Mixture of ADK STAB AO-60 and	Approved Approved [B]NL-4243
Auma		, , ,	ADK STAB 2112	20kgB/G
A-612 A-612RG	AO-60/2112=1/2	White powder (RG: granule)	Effectively protects polymers against thermal degradation during/after processing	Approved Approved [B]NL-4244
A-012IIG		(11011 g. a.11010)	Provides long-term heat stabilization	20kgB/G
A-613 A-613RG	AO-60/2112=1/3	White powder (RG: granule)	antiovidant and phosphite	Approved Approved [B]NL-4245
A-013HG				20kgB/G
A-512RG	AO-50/2112=1/2	White granule	Mixture of ADK STAB AO-50 and ADK STAB 2112 Effectively protects polymers against thermal degradation during / after processing	Approved Approved [B]NM-36318
				20kgB/G
		140	Provides excellent resistance to discoloration against heat and/or light and/or NOx gas For polyolefins, rubber, PBT	Approved
AO-15	Blend	White powder M.P. 206~219°C		 [B]NM-3035
		M.P. 206~219 C		15kgC/S
AO-18	Blend	White powder M.P. ≥210°C	Provides long-term heat stabilization for filled/cross-linked polyolefins	Approved — —
		=2100	. ,	12kgC/S



ADK STAB THIOETHERS

Thioethers decompose polymer peroxide to inert substance. Particularly, thioethers exhibit remarkable synergism in combination with hindered phenols.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
AO-412S	29598-76-3 R: C ₁₂ alkyl	White powder M.P.46~52°C M.W.1162	Exceptional long-term heat stability compared to DLTDP or DSTDP Very low volatility Excellent resistance to extraction	Approved10kgC/S
AO-503	s—(O ₀ -C ₁₃ H ₂₇) ₂ 10595-72-9	Clear liquid Vis. 55mPa·s M.W.543	Liquid form Good dispersibility/solubility in adhesives, coatings, latexes, etc	

^{*}For detail information, please contact us.

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ADK STAB METAL DEACTIVATORS

Metal deactivators prevent oxidative degradation caused by copper or other metal catalysts.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
CDA-1	OH O N NH NH NH 36411-52-6	White powder M.P.315~325 C M.W.204		
CDA-1M	Blend 36411-52-6 (main component)	White powder M.P.≧214°C	Excellent metal deactivator Non discoloring For Polyolefins, ABS & Others	
CDA-6	OH O H CH ₂ 10 O OH O OH	White powder M.P.209~215°C M.W.498		
CDA-10	tBu но о о о о о о о о о о о о о о о о о о	White powder M.P.224~229°C M.W.553	Low cost conventional type For Polyolefins, ABS & Others	Approved Approved — 20kgB/G



ADK STAB ADDITIVES FOR FILLED POLYMERS

This series of additives are specialized for filled polymers.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
ZS-27	Blend 108-78-1 (main component)	White powder M.P.≧65°C	•Effective heat stabilizing metal deactivator •For filled PP	[B]PM-3232 15kgC/S
ZS-90	Blend	White powder M.P.>110°C	*Improves compatibility with filled	Approved Approved [B]PL-3812
ZS-91	Blend	White powder M.P.>110°C	PP •For filled PP	Approved Approved [B]NL-3871
				15kgC/S

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ADK STAB NUCLEATING AGENTS / CLARIFIERS

Nucleating agents give high degree of crystallinity to polymer resulting in increased mechanical properties such as hardness, elasticity modulus etc, and improve optical properties such as transparency.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
NA-11	tBu	White powder M.P.≧400°C M.W. 508	Effectively improves stiffness, heat distortion temperature, crystallization temperature/rate and clarity of PP High resistance to heat and extraction Odorless	Approved Approved [B]NL-1174 10kgC/S
NA-27	Blend	White powder M.P.≧210°C	•Effectively improves stiffness, heat distortion temperature, crystallization temperature/rate and clarity of PP •Better performance than NA-11, particularly in one pack granule for	Approved Approved [B]PL-36058 10kgC/S
NA-902	Blend	White powder M.P.≧210 C	-Low cost conventional type -For Polyolefins	Approved Approved [B]PL-36013 10kgC/S
NA-21	Blend 151841-65-5 (main component)	White powder M.P.≧210°C	•Effectively improves both transparency and mechanical properties •Superior performance, even at lower	Approved Approved [B]NL-4108 10kgC/S
NA-71	Blend	White powder M.P.≧210°C	loading level, compared to conventional clarifiers Odorless For Polyolefins	Approved Approved [B]PL-5290 10kgC/S
NA-05	Nitrogen-containing compound	White powder M.P.≧350 C	Designed for Polyester, in particular PET Enhances crystallization rate, resulting in reduced processing cycle time and enhanced productivity Improves mechanical properties, gas barrier properties, gloss and warpage/shrinkage	Approved Approved [B]NL-13643 20kgB/G



ADK STAB LUBRICANTS

Lubricants will reduce wear and friction between polymer and other material during processing.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
FC-113	Blend 25767-47-9 (main component)	White powder Softening point 100~125°C	•Excellent lubricant for plastics processing •For FR-ABS & Others	Approved — — 15kgC/S
AX-71	(HO) _n (OC ₁₈ H ₃₇) _{3-n} 39471-52-8	Light amber flake M.P. 68~75°C M.W. 490	*Excellent lubricant for EVA, TPE & Others *Catalyst-deactivator for Polyesters	Approved — 15kgC/S



ADK STAB UV ABSORBERS

UV absorbers convert photochemical energy of light into harmless heat.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
LA-29	3147-75-9	Pale yellow powder M.P.102~106°C M.W.323	Low color contribution Low volatility Good compatibility with many polymers	Approved — [B]NM-13068 20kgB/G
LA-31RG LA-31G	103597-45-1	Light yellow powder (G: granule) M.P.194~200°C M.W.659	Very low volatility due to high M.W Excellent thermal stability Excellent retention within the polymer For engineering plastics requiring high processing temperatures	Approved — [B]NM-1672 [B]QM-2442 15kgC/S LA-31G:20kgB/G
LA-32	HO N,N- 2440-22-4	Pale yellow powder M.P.127~132°C M.W.225	Strong UV absorber Low color contribution For PVC, PS, PU, Acrylic resins, elastomers, etc	Approved Approved [B]NL-0895 20kgB/G
LA-36 LA-36RG	N.N.N. HO TBu 3896-11-5	Pale yellow powder(RG: granule) M.P.138~141°C M.W.315	*Common benzotriazole-type UVA *Excellent absorption in longer- wavelength UV regions, compared to other benzotriazole-type UVAs	Approved Approved [B]NL-0896 20kgB/G
LA-46	371146-04-2	Light yellow powder M.P.106~108°C M.W.512	High absorption between 280nm and 300nm UV regions Excellent thermal stability and discoloration resistance against heat Low volatility	_ _ _
1413	0 OH O-nC ₈ H ₁₇	Pale yellow powder M.P.47~49°C M.W.326	Benzophenone-type UVA Low color contribution High absorption in short-wavelength UV regions Good compatibility with many polymers	Approved Approved [B]NM-0098 10kgC/S



ADK STAB HINDERED AMINE LIGHT STABILIZERS

Hindered amine light stabilizers (HALSs) show excellent UV protection by scavenging radicals generated by photo degradation.

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
LA-52	91788-83-9	Pale yellow powder M.P.>65 C M.W.847	Low basic N-CH3-type HALS with high effective amine content Provides excellent light/heat stability, especially to filled/pigmented polymers	[B]PM-2311 15kgC/S
LA-57	COO-R COO-R COO-R R = NH	Pale yellow powder M.P.125~135 C M.W.791	N-H-type HALS with high effective amine content Provides excellent light stability to many polymers	
LA-63P	101357-36-2 85631-00-1	Pale yellow powder M.P.85 C~105 C M.W. approx.2000	High molecular weight HALS Very low volatility Excellent resistance to extraction Provides excellent light stability to	
LA-68	101357-37-3 85631-01-2	Pale yellow powder M.P.80°C~110°C M.W. approx.1900	thin applications, such as olefin films and engineering plastics which require high processing temperature	
LA-72	41556-26-7 (main component)	Light yellow liquid SG. 0.99 Vis. 240mPa·s	Conventional liquid HALS Main component is N-CH3-type HALS Good dispersibility/solubility in coatings, sealants, etc	
LA-77Y LA-77G	52829-07-9	White powder (G: granule) M.P.82 C~87 C M.W. 481	Conventional low molecular weight N-H-type HALS Provides excellent light stability to polymer molded articles, etc	Approved [B]NM-1679 20kgB/G
LA-81	C ₁₁ H ₂₃ -O-N O-C ₁₁ H ₂₃	Light yellow liquid SG 0.94 Vis. 1600mPa·s M.W. 681	Very low basic NO-Alkyl-type HALS Provides excellent light stability to low-polar polymers, such as polyolefins, etc Particularly for applications exposed to acid compounds such as agrochemicals	 16kgC/N
LA-82	-N-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-	Clear liquid Vis. 12mPa·s M.W. 239	Polymerizable HALS having metacrylate group	 15kgC/N
LA-87	31582-45-3	Pale yellow powder M.P.58 C~60°C M.W. 225	Copolymerizable with a variety of monomers	 15kgC/S
LA-402AF	Blend 167078-06-0 (main component)	Light yellow pellet Softening≧120 C	Light stabilizer system PP masterbatch Designed for use in pigmented polyolefins Excellent compatibility with polyolefins For PP/TPE automotive parts	 20kgB/G
LA-502XP	Blend 91788-83-9 (main component)	Light yellow pellet Softening≧120°C	Light stabilizer system PP masterbatch Designed for use in pigmented polyolefins Main component is LA-52 For PP/TPE automotive parts	 [B]PM-4859 20kgB/G

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ADK STAB FLAME RETARDANTS

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
FP-600	5945-33-5, 181028-79-5	Colorless viscous liquid Vis. >20000mPa·s	Halogen-free liquid oligomeric phosphate flame retardant for engineering plastics Excellent hydrolysis stability, thermal stability and low volatility	220kgD/M
PFR	125997-21-9	Colorless viscous liquid Vis. 500~800mPa·s	Halogen-free liquid oligomeric phosphate flame retardant for engineering plastics High phosphorus content and low volatility	220kgD/M
FP-2100JC	Blend	White powder	Halogen-free intumescent flame retardant for polyolefins, TPE, etc Less effect on mechanical properties and density compared with Brominated-FR, ATH and MDH-type	20kgB/G
FP-2200	Blend	White powder	Smoke & CO suppression level is same as ATH or MDH-type flame retardant Combination with HALS is acceptable	20kgB/G
FP-2200S	Blend	White powder	Halogen-free intumescent flame retardant for polyolefins, TPE, etc The most suitable for Wire & Cable application and can keep an excellent surface of jacketing	

Intumescent flame retardant could aggregate and lead to processing trouble under humid condition. Please use immediately after opening.



OTHERS

ADK STAB Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
LX-803A	Blend	White suspension	Non-staining AO for rubber latex Improving stain and color For SBR latex and others	 17kgC/N
ADK CIZER Trade name	Chemical structure CAS-No.	Properties	Features and applications	Food contact approval* US EU JAPAN Packaging
BF-1000	Epoxidized 1,2-polybutadiene	Colorless liquid SG (30°C) 0.96 Vis.(45°C) 15000~50000mPa·s M.W. approx.1000	*This structure has epoxy group and vinyl group *For Coating, Adhesives & Others	[B]EL-2605
D-32	Epoxidized octyl stearate	Colorless liquid SG (30°C) 0.915 Vis.52mPa·s	Capture of catalyst residues in polymers For Polyolefins	 [B]NL-0096 180kgD/M

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NETWORK & TESTING INSTRUMENTS



7-2-35, Higashi-ogu, Arakawa-ku Tokyo 116-8554, JAPAN Phone:81-3-4455-2845

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5-2-13, Shirahata, Minami-ku Saitama-shi, Saitama 336-0022, JAPAN Phone:81-48-838-2222

MIE PLANT

3707-1, Yamada, Touin-cho, Inabe-gun, Mie 511-0251, JAPAN Phone:81-594-76-2330

OVERSEAS

ADEKA KOREA CORP.

(Sogong-dong, Seoul Center Bldg), 301, 116, Sogong-ro, Jung-gu Seoul, 100-070, KOREA Phone:82-2-726-0600 Fax:82-2-753-8069

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TESTING INSTRUMENTS

Processing & Processability

Single screw extruder Twin screw extruder Injection molding machine Press Calender roll Henschel mixer Flow tester Plastograph

Melt indexer

Weathering & Heat Aging

Xenon weather meter (xenon arc lamp) Sunshine weather meter (carbon arc lamp) Dew panel weather meter (fluorescent lamp) Super UV tester (metal halide lamp) Outdoor exposure (Shizuoka, JAPAN) Humidity cabinet Geer oven

Physical Properties

Tensile tester Stiffness tester

(Charpy, Izod, tensile)

Torsion tester (Clash-Berg) Brittleness tester

Surface tension meter Falling ball impact tester

Colorimeter

Contact angle meter

Haze meter Gloss meter Color meter

Surface resistivity meter Volume resistivity meter

Analyses

GC HPI C FT-IR FT-NMR

Ultraviolet-visible Spectrophotometer Atomic absorption spectrometer X-ray fluorescence analyzer

Mass spectrometer

ICP spectrometer

Fluorescence spectrometer

TG-DTA DSC

Oxygen index meter Cone Calorimeter



ADDITIVES SOLUTION

ADK STAB		Po	olyolefi	ns		S	Styrenic	s	Engineering Plastics								Others					
Trade name	PP	HDPE	LLDPE	LDPE	Others	HIPS	GPPS	ABS	PBT	PET	PC	POM	PPO	PA	PMMA	Sealant	PUR	PVC	Latex	Coating		
AO-20																						
AO-30																						
AO-40																						
AO-50																						
AO-60																						
AO-80																						
AO-330																						
PEP-8																						
PEP-36A																						
HP-10																						
2112																						
1178																						
1500																						
С																						
135A																						
3010																						
TPP																						
AO-412S																						
AO-503																						
A-611																						
A-612																						
A-613																						
A-512RG																						
AO-15																						
AO-18																						
CDA-1																						
CDA-1M																						
CDA-6																						
CDA-10																						
ZS-27																						
ZS-90																						
ZS-91																						

Recommended	Applicable

NA-11 NA-27 NA-902 NA-21 NA-71 NA-05 FC-113 AX-71 LA-29 LA-31RG LA-32 LA-36 LA-46 LA-46 LA-46 LA-47 LA-68 LA-68 LA-77 LA-68 LA-77 LA-67 LA-68 LA-77 LA-87 LA-87 LA-87 LA-87 LA-87 LA-87 LA-87 LA-87 LA-80 FP-800 FP-	ADK STAB	Polyolefins					S	Styrenic	s	Engineering Plastics							Others					
NA-902		PP	HDPE	LLDPE	LDPE	Others	HIPS	GPPS	ABS	PBT	PET	PC	POM	PPO	PA	PMMA	Sealant	PUR	PVC	Latex	Coating	
NA-902	NA-11																					
NA-71 NA-71 NA-76 NA-76 NA-76 NA-77 NA-76 NA-77 NA-76 NA-77 NA-78 NA-77 NA-78 NA-78 NA-78 NA-79	NA-27																					
NA-71 NA-05 FC-113 AX-71 LA-29 LA-31RG LA-32 LA-36 A A-46 LA-46 LA-52 A A-57 A A-68 A A-71 A A A-71 A A A-7	NA-902																					
NA-05	NA-21																					
FC-113	NA-71																					
AX-71 Image: contract of the contract	NA-05																					
LA-29	FC-113																					
LA-31RG LA-32 LA-36 LA-46 LA-52 LA-63P LA-68 LA-77 LA-77 LA-77 LA-81 LA-82 LA-80	AX-71																					
LA-32	LA-29																					
LA-36	LA-31RG																					
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NOTES

Review MATERIAL SAFETY DATA SHEET (MSDS) before using ADEKA products.

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