

RESIN CLEANER – Polymer removers
ESTISOL & ESTICLEAN - Solvents
ESTICLEAN AR-PLUS – Emulsion

Alternatives to Acetone, NMP/NEP,
hydrocarbon solvents and other problematic /
hazardous solvents

ENVIRONMENTALLY SOUND
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ESTICHEM AS

The same applies to all applications: the accurate cleaning of tools, moulds, applicators, mixing and transport containers, etc. is a prerequisite for consistently good product quality. Esti Chem supports this with the required cleaning quality and also contributes to safe handling and improved environmental properties when using the following cleaning products.

RESIN CLEANER - in the processing of polymers

For the production of polymer work pieces in various industries such as automotive, wind turbines, ship building, container and pipeline construction, household appliances and in the coatings & adhesives industry the RESIN CLEANERs find their use. The overview below shows the selection table for the typical applications:

Polymer	Application	RESIN CLEANER					ESTISOL	
		A	EP2	EP40	PU21	PU30	110P	165
Poly-urethane	Stirrers, pipes and nozzles							
	Moulds							
	Tools							
Epoxy	Stirrers, pipes and nozzles							
	Moulds/Tools							
	Mixing vessels							
Polyester / Vinylester	Stirrers, pipes and nozzles							
	Moulds							
	Tools							

Highly recommended Recommended Not recommended

	Viscosity cP/20°C	Surface tension mN/m/25°C	VOC m/m %	Flash point °C	Density g/cm³ 20°C	Evaporation at 50°C / 2h [m/m %]
	RESIN CLEANER					
A	2.8	36.0	<1	103	1.087	2
EP2	2.8	34.9	52	98	1.061	3
EP40	2.6	36.8	100	84	1.113	1
PU21	3.0	35.1	100	96	1.050	3
PU30	2.6	35.4	25	83	1.083	2
	ESTISOL					
110P	3.0	29.6	100	80	0.979	4
	Other solvents (for comparison)					
Acetone	0.3	23.3	100	<-20	0.791	n.a.
NMP	2.3	40.9	100	91	1.030	2
Benzyl alcohol	6.9	39.7	100	101	1.045	1
DBE	3.1	35.7	0	102	1,089	2

ESTISOL & ESTICLEAN – in the paint and adhesive processing as well as in asphalt industry for cleaning of vehicles and equipment

In the production and processing of paints, inks and adhesives appropriate cleaners contribute to maintaining the product quality. The same demands are seen in the asphalt industry. In the overview table below, a number of ready-to-use Esti Chem rinsing and cleaning products are listed with their main uses:

Cleaning in the …	Application	ESTISOL		ESTICLEAN		
		100	165	S200	159	AR-PLUS
Coating Industry	Alternative to hydrocarbon solvents & terpenes					
	Alternative to ketones & other polar solvents					
Adhesive industry	Alternative to ketones & other polar solvents					
	Removal of cured adhesives					
Polystyrene industry	Removal of EPS-from moulds					
Asphalt Industry	Vehicles and other transport equipment					
	Thick asphalt layers and oxidised residues					

	Viscosity cP/20°C	Surface tension mN/m/25°C	VOC m/m %	Flash point °C	Density g/cm³ 20°C	Evaporation at 50°C / 2h [m/m %]
	ESTISOL					
100	3.4	26.9	40	94	0.860	3
165	3.1	34.3	100	81	1.100	4
	ESTICLEAN					
S200	2.9	25.1	61	94	0.983	6
159	4.4	35.2	0	102	1.078	2
AR-PLUS	17.3	26.7	0	n.a.	0.950	5
	Other solvents (for comparison)					
Phenol-alkylsulfonic acid ester	132	34.9	0	>200	1.059	0
Xylene	0.8	28.4	100	27	0.870	52
Ethyl acetate	0.5	24	100	-4	0.902	n.a.

RESIN CLEANER / ESTISOL / ESTICLEAN – Hazard labelling

The Esti Chem range of products enables the replacement of common, hazardous solvents. Compared to traditional solvents, Esti Chem offers a number of advantages in handling & environmental properties with its products: Lower or no product labelling - Elimination of flammability compared to traditional solvents - Reduction of skin and eye irritation potential - No special requirements for product storage - Low evaporation = lower inhalation potential and thus less effort for ventilation and lower odour. The following table gives you an overview of Esti Chem product labelling compared with traditional solvents:

Product	Labelling (GHS)	H - Sentence	P – Sentence
RESIN CLEANER A	None	None	None
RESIN CLEANER EP2		318	280, 305+351+338, 310
RESIN CLEANER EP40		319	264, 280, 305+351+338, P337+P313
RESIN CLEANER PU21		318	280, 305+351+338, 310
RESIN CLEANER PU30	None	None	None
ESTISOL 100		H315, H319	P280, P305+P351+P338, P321, P362, P332+P313, P337+P313
ESTISOL 110P	None	None	None
ESTISOL 165	None	None	None
ESTICLEAN S200		H318	P280, P305+P351+P338, P310
ESTICLEAN 159	None	None	None
ESTCLEAN AR-Plus	None	None	None

Product	Labelling (GHS)	H – Sentence	P – Sentence
Acetone		225, 319, 336, EUH066	210, 261, 305+351+338
Benzyl alcohol		302, 332	261, 301+312, 304+340
Ethyl acetate		225, 319, 336, EUH066	210, 233, 240, 241, 242,243, 280, 303+361+353, …
NMP		318, 361d	305+351+338, 308+311, 310, 405, 501

Explanation of H-sentences in above table:

H225: Highly flammable liquid and vapour
H302 Harmful if swallowed
H310 Fatal in contact with skin
H312 Harmful in contact with skin
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H318 Causes serious eye damage
H319 Causes serious eye irritation
H332 Harmful if inhaled
H335 May cause respiratory irritation
H336 May cause drowsiness or dizziness
H361 Suspected of damaging fertility or the unborn child
EUH066 Repeated exposure may cause skin dryness or cracking

The above product descriptions and the production and application recommendations correspond with our current knowledge. They are based on the experience and values known to us concerning the products marketed by us. We cannot, however, provide warranty for their accuracy. For this reason, they do not represent assured characteristics in a legal sense. In view of the fact that individual application conditions of the products are outside our influence, we cannot accept liability for damage in connection with the use of our product information and the application of products supplied by us, in so far as such damage was not caused through our fault. It is the responsibility of the user to observe all legal regulations and protective rights.

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