

ASAHIKLIN AE3000ATE

AsahiKlin AE3000ATE, a mixture of Trans-1,2-Dichloroethylene, 1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether, ethanol, is a non-flammable, non-ozone depleting solvent.

Typical Applications

- Defluxing of printed wiring assemblies
- Precision cleaning of plastics, substrates, electrical components, metals, and particle removal
- Drying agent after aqueous cleaning, or cleaning with hydrocarbons or alcohols
- Replacement for HCFC, perchloroethylene, trichloroethylene, Dupont™ Vertrel®, & 3M™ Novec™ solvents

Benefits

- Non-flammable
- Non-corrosive
- Superior drying property
- Excellent permeability
- Recyclable
- Low global warming potential (GWP)
- Zero ozone depletion potential (ODP)
- No surfactants necessary
- Recoverable by simple distillation
- Can be used with ultrasonics
- Low surface tension & viscosity
- High liquid density
- Excellent thermal, chemical, and hydrolytic stability
- Material compatibility with a wide variety of metals, plastics, and elastomers

Physical Properties

Property	AsahiKlin AE3000ATE
Boiling Point	42 °C (107.6 °F)
Melting Point	-50 °C
Density (g/cm ³ , 25 °C)	1.35
Viscosity (cST, 25 °C)	0.34
Surface Tension (dyne/cm, 25 °C)	18
Specific Heat (kJ/kg K, 25 °C)	1.40
Latent Heat of Vaporization (KJ/kg, 39 °C)	200
Relative Evaporation Rate (Ether=100)	92
Flash Point (Open/Closed cup)	None
KB Value	38

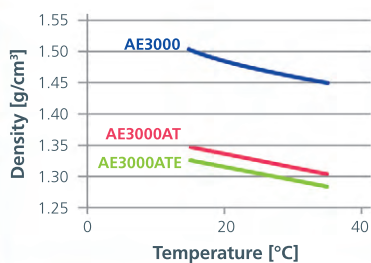
Composition

Components	AsahiKlin AE3000ATE
Trans-1,2-dichloroethylene	46-55%
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether	43-52%
Ethanol	1-3%

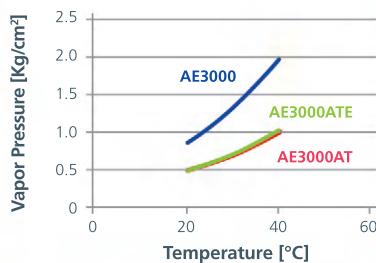
Cleaning Procedure

It is recommended that AsahiKlin AE3000ATE be used in a vapor degreaser to optimize cleaning efficiency, economy, and emission control. Cleaning procedures for AsahiKlin AE3000ATE are quite similar to those of AK225 products. The procedures consist of immersing a workload into the boiling solvent, rinsing or spraying with cool solvent and drying in solvent vapor.

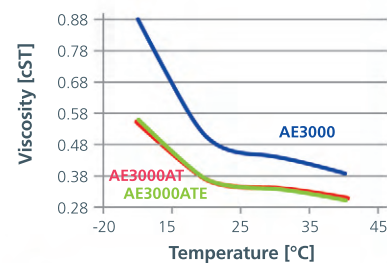
Density Vs. Temperature



Vapor Pressure Vs. Temperature



Viscosity Vs. Temperature



Effect of AsahiKlin AE3000ATE on Unstressed Plastics at the Boiling Point

Material	At boiling for 5min			At boiling for 3 days		
	Weight Change (%)	Linear Swell (%)	Extractables (%)	Weight Change (%)	Linear Swell (%)	Extractables (%)
Polyvinyl chloride (rigid)	3.8	4.0	<0.1	43.5	45	0.8
Polyvinyl chloride (plasticized)	23.5	19.0	5.8	-7.4	-17.5	26.8
Polyethylene (HP)	8.6	6.0	<0.1	110.4	Affected	1.1
Polyethylene (LP)	1.5	1.5	<0.1	16.3	12.8	2.4
Polypropylene	2.4	1.8	0.3	31.0	22.1	1.0
Polystyrene	31.2	16.9	0.8	Affected	Affected	105.8
Polycarbonate	17.2	23.2	0.2	36	65.2	1.0
Polyacetal	0.4	0.4	<0.1	11.4	13.1	0.4
Polyphenylene oxide	34.0	20.3	1.2	107.6	Affected	10.6
Phenolic	0.2	0.2	<0.1	11.4	11.4	1.2
ABS	45.5	23.7	0.9	181	Affected	4.5
Nylon6	<0.1	-4.0	0.3	8.5	2.8	0.1
Nylon66	0.2	-0.1	0.2	7.3	7.5	0.2
Polyester (FR)	3.1	3.0	0.2	76.8	134.7	5.3
PTFE	0.1	0.2	<0.1	2.6	3.9	0.1
PCTFE	0.2	0.7	<0.1	10.4	16.2	<0.1
Epoxy (FR)	0.4	0.5	<0.1	7.4	12	0.1
Polyphenylene sulfide	0.1	-0.9	<0.1	3.8	4.8	0.1
Polybutylene terephthalate	1.0	1.2	<0.1	13.5	12.3	0.6
Polyethylene terephthalate	25.9	22.2	0.3	71.4	78	2.6

Effect of AsahiKlin AE3000ATE on Elastomers at the Boiling Point

Material	At boiling for 5min			At boiling for 3 days		
	Weight Change (%)	Linear Swell (%)	Extractables (%)	Weight Change (%)	Linear Swell (%)	Extractables (%)
Polysulfide rubber FA(T)	19.8	16.4	1.9	63.8	50.1	13.6
Natural rubber (NR)	23.0	20.9	1.3	46.7	33.9	12.7
Urethane rubber (UR)	40.0	35.8	6.0	178.6	129.7	13.2
Isobutylene isoprene rubber (IIR)	18.3	15.6	3.2	38.1	29	14.3
Polychloroprene (CR)	18.7	17.8	<0.1	31.8	28	14.2
Fluoroelastomer E (FKM)	11.1	14.6	<0.1	84.2	109.5	3.8
Chlorosulfonated polyethylene (CSM)	15.2	13.0	2.1	32.4	27	12.7
Silicone rubber (Q)	66.7	54.8	0.5	167	128.6	2.5
Nitril rubber (NBR)	29.1	27.0	3.2	66.2	59.9	13.5
Ethylene propylene diene terpolymer (EPDM)	16.1	13.6	4.2	16.7	7.8	18.6

Effect of AsahiKlin AE3000ATE on Viton and PTFE at the Boiling Point

Material	At boiling for 7 days		
	Weight Change (%)	Linear Swell (%)	Extractables (%)
Viton (FDA White)	57.1	53.9	0.9
Viton (Chemical Resistant)	90.5	68.4	1.2
Viton (Low Temp)	71.2	54.6	0.2
Viton	72.0	60.4	6.8
PTFE	2.7	1.1	<0.1

Environmental Properties

Property	AsahiKlin AE3000ATE
Ozone Depletion Potential (ODP), CFC-11 = 1.0	None
Global Warming Potential (GWP), CO ₂ = 1.0, 100yr ITH	274 (Calculated value by the AIST)
Flash Point	None

Environmental Health and Safety

Please read the current product Material Safety Data Sheet (available through your AGCCA technical service representative) and the precautionary statement on the product package prior to use. Follow all applicable precautions and directions.

AsahiKlin AE3000ATE is nonflammable. The solvent is an azeotrope and is resistant to thermal breakdown and hydrolysis during storage and use. Recommended handling procedures are provided in the Material Safety Data Sheet, which is available from your AGCCA representative upon request.



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