

ASAHIKLIN

AsahiKlin™ AE3000AT

Product Description

Asahiklin AE3000AT, a mixture of Trans-1,2-Dichloroethylene, 1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether, is a non-flammable, non-ozone depleting solvent.

Applications

- Defluxing of printed wiring assemblies
- Precision cleaning of plastics, substrates, electrical components, metals, and particle removal
- Drying agent after 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
- Material compatibility with a wide variety of metals, plastics, and elastomers
- Excellent thermal, chemical, and hydrolytic stability
- Low surface tension, low viscosity, high liquid density

Material Composition

Trans-1,2-dichloroethylene	46-54%
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether	43-52%

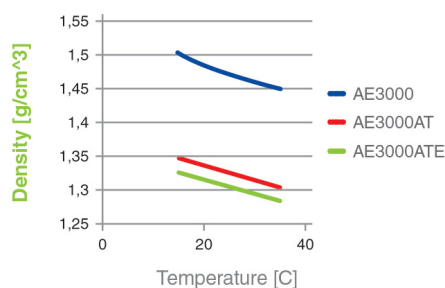
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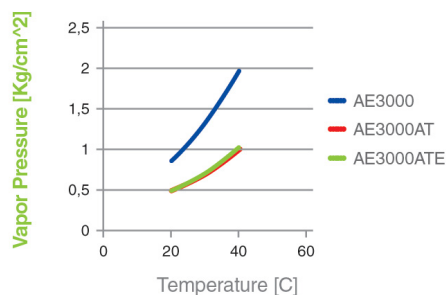
Physical Properties

Boiling Point	38°C (100.4°F)
Melting Point	-49.3°C
Density (g/cm ³ , 25°C)	1.36
Viscosity (cST, 25°C)	0.33
Surface Tension (dyne/cm/ 25°C)	18
Specific Heat (kJ/kg K, 25°C)	1.30
Latent Heat of Vaporization (KJ/kg, 39°C)	185
Relative Evaporation Rate (Ether=100)	93
Flash Point (Open/Closed Cup)	None
KB Value	32

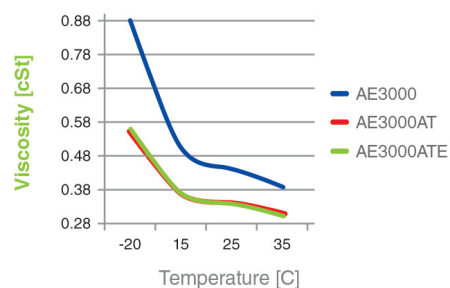
Density vs. Temperature



Vapor Pressure vs. Temperature



Viscosity vs. Temperature



Cleaning Procedures

It is recommended that Asahiklin AE3000AT be used in a vapor degreaser to optimize cleaning efficiency, economy, and emission control. Cleaning procedures for Asahiklin AE3000AT 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.

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Material Compatibility

Asahiklin AE3000AT has a broad range of compatibilities.

Effect of Asahiklin AE3000AT on Unstressed Plastics at the Boiling Point.

	At boiling for 5min			At boiling for 3 days		
	Weight change (%)	Linear Swell (%)	Extractables (%)	Weight change (%)	Linear Swell (%)	Extractables (%)
Polyvinyl chloride (rigid)	3.2	2.2	<0.1	40.9	41.3	0.7
Polyvinyl chloride (plasticized)	23.0	17.4	5.8	-9.2	-20.4	19.2
Polyethylene (HP)	8.1	5.7	<0.1	128.6	affected	1.3
Polyethylene (LP)	1.4	0.1	<0.1	23.6	18.7	4.1
Polypropylene	1.95	1.3	<0.1	38.6	27.8	1.5
Polystyrene	34.0	19.9	0.3	affected	affected	103.8
Polycarbonate	16.4	19.7	<0.1	33.2	56.6	1.1
Polyacetal	0.28	0.36	<0.1	11.0	16.4	0.4
Polyphenylene oxide	30.5	22.7	0.92	affected	affected	102.6
Phenolic	0.17	0.13	<0.1	9.8	9.0	0.8
ABS	38.4	24.3	0.44	154.7	affected	3.0
Nylon6	<0.1	-3.4	<0.1	5.5	2.7	<0.1
Nylon66	<0.1	0.42	<0.1	4.8	5.2	<0.1
Polyester (FR)	2.4	3.4	<0.1	18.9	26.3	3.9
PTFE	<0.1	0.25	<0.1	2.7	2.6	<0.1
PCTFE	0.22	0.7	<0.1	11.3	17.4	<0.1
Epoxy (FR)	0.3	0.1	<0.1	6.8	9.9	<0.1
Polyphenylene sulfide	0.25	<0.1	<0.1	3.8	4.5	<0.1
Polybutylene terephthalate	0.82	0.18	<0.1	13.4	11.7	0.8
Polyethylene terephthalate	19.6	18.8	<0.1	64.5	72.7	1.9

Note: negative numbers denote shrinkage

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Effect of Asahiklin AE3000AT on Elastomers at the Boiling Point.

	At boiling for 5min			At boiling for 3 days		
	Weight change (%)	Linear Swell (%)	Extractables (%)	Weight change (%)	Linear Swell (%)	Extractables (%)
Polysulfide rubber FA(T)	18.9	16.8	<0.1	61.0	52.8	11.7
Natural rubber (NR)	19.9	19.1	0.2	45.5	32.6	10.7
Urethane rubber (UR)	30.6	25.9	<0.1	138.9	109.2	4.0
Isobutylene isoprene rubber (IIR)	19.5	13.0	0.9	38.7	30.0	13.6
Polychloroprene (CR)	18.0	16.5	1.3	29.6	23.2	17.9
Fluoroelastomer E (FKM)	8.0	9.3	<0.1	82.0	103.5	3.9
Chlorosulfonated polyethylene (CSM)	15.3	14.1	1.2	29.7	23.9	10.7
Silicone rubber (Q)	63.4	44.8	<0.1	155.6	120.1	2.4
Nitril rubber (NBR)	22.4	20.1	1.4	54.2	48.4	13
Ethylene propylene diene terpolymer (EPDM)	17.3	14.1	3.5	17.5	8.3	17.3

Effect of Asahiklin AE3000AT on Viton and PTFE at the Boiling Point.

	At boiling for 7 days		
	Weight change (%)	Linear Swell (%)	Extractables (%)
Viton (FDA White)	55.2	37.3	0.5
Viton (Chemical Resistant)	92.7	74.3	1.4
Viton (Low Temp)	72.0	56.6	0.2
Viton	73.6	57.5	7.0
PTFE	2.8	0.9	<0.1

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Environmental Properties

Properties	Asahiklin AE3000AT
Ozone Depletion Potential (ODP) ¹	None
Global Warming Potential (GWP) ²	*274
Flash Point	None

¹ CFC-11 = 1.0

² CO₂ = 1.0, 100yr ITH

* Calculated value by the AIST

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 AE3000AT is nonflammable. The solvent acts as 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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