



# ABATRON, INC.

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## HIGH-PERFORMANCE DIELECTRIC EPOXIES

TDS 870915

### 11 DIELECTRIC IN/OUTDOOR EPOXY SYSTEMS WITH SUPERIOR ARC-TRACK RESISTANCE, HIGH VOLTAGE & HEAT RESISTANCE, LOW ASH & ION CONTENT, CHLORINE-FREE

The following 2-part epoxies, and their variations, are based on formulas originally designed for casting large high-voltage outdoor insulators with arc-track and weathering resistance no conventional epoxy could approach. They also offer: absence of hydrolysable chlorine, low ash content (only about 20 parts per million), very low ion content, high heat and chemical resistance, low viscosity, long pot life. Several have superior thermo shock resistance. Their dimensional stability and adhesion on difficult surfaces are outstanding.

Their range of applications extends as far as electronic and structural applications can develop.

Product Name Product Code	ABOCAST 8103-20	ABOCAST 8103-21	ABOCAST 8103-22	ABOCAST 8103-23	ABOCAST 8103-24	ABOCAST 8103-25
Lbs/Gallon, part A	9.8	9.5	9.5	9.8	9.5	9.7
Lbs/Gallon, part B	9.1	9.1	9.8	7.9	9.8	9.8
Parts by weight A:	100	100	100	100	100	100
" " " B:	100	65	77	112	75	78
Appearance, A/B blend	clear	clear	clear	clear	opaque	opaque
Pot life @ 25° C	>8 hrs.	>8 hrs.	>8 hrs.	>8 hrs.	>8 hrs.	>8 hrs.
" " " 80° C	0.5 hrs.	0.5 hrs.	0.5 hrs.	0.5 hrs.	0.5 hrs.	0.5 hrs.
Curing cycle:	----- 2-3 hrs. @ 100° C + optional 1-4 hrs. @ 120-160° C -----					

#### Dielectric Constant/Dissipation Factor @ 60 Hz:

23° C	2.8/.008	2.9/.010	3.0/.005	4.2/.030	3.3/.009	3.2/.016
100° C	2.7/.007	3.2/.031	3.2/.020	4.9/.040	3.79/.027	4.2/.053
150° C	3.0/.010	3.3/.080	4.1/.070	4.3/.040	4.6/.073	4.72/.089
Volume Resistivity, Megohm-cm @ 23° C	1 x 10 <sup>14</sup> 1/40	1 x 10 <sup>14</sup> 1/40	1 x 10 <sup>14</sup> 1/40	2 x 10 <sup>14</sup> 9	1 x 10 <sup>14</sup> 9	1.8 x 10 <sup>14</sup> 9
Arc Resistance, Seconds	>150	>150	>150	>150	>150	>150
Arc-Track Free, 2.5KV, Min.	>2000	>2000	>2000	>1500	>2000	>2000
Deflection Temperature	190° C	100° C	108° C	<25° C	163° C	123° C
Thermal Shock Resistance (*)	<1	3.2	4.8	5.7	7.2	8.2
Tensile Elongation	2-3%	27%	4.9%	140%	11%	5.9%
Tensile Strength, psi	9000	8000	11,300	1100	6100	10,400
Tensile Modulus, psi	445,000	790,000	412,000	---	223,000	379,000

**ABOCAST 8103-20:** unique for its exceptional heat resistance and low dielectric constant.

**ABOCAST 8103-21:** combines rigidity, heat resistance and good thermocycling properties.

**ABOCAST 8103-22:** used in light emitting diodes and where light-fast transparency is needed.

**ABOCAST 8103-23:** remarkable combination of high elongation and electric properties.

**ABOCAST 8103-24:** exceptional combination of rigidity, heat and thermocycling resistance.

**ABOCAST 8103-25:** combines optimum physical properties and thermo shock resistance.

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When the above products are blended with inert inorganic fillers, compounds result exemplified by the 8103-26 to 8103-30 shown below. The fillers minimize the shrinkage and the exotherm, increase the heat conductivity to the level of heat-sinks, reduce flammability and the coefficient of thermal expansion. The filled formulations are widely used for potting and encapsulation of transformers, high-voltage coils and many more electrical components, as well as for the casting of large high-voltage outdoor insulators with high arc-track resistance. Many special variations are available.

Product Name Product Code	ABOCAST 8103-26	ABOCAST 8103-27	ABOCAST 8103-28	ABOCAST 8103-29	ABOCAST 8103-30
Lbs/Gallon, part A	14	14	14	14	14
Lbs/Gallon, part B	9.8	9.8	9.1	9	9.8
Parts by weight A:	100	100	100	100	100
" " " B:	20.6	18.4	17.6	11.2	18.5
Appearance, A/B blend	----- GRAY OR CUSTOM -----				
Pot life @ 25° C	>8 hrs.	>8 hrs.	>8 hrs.	>8 hrs.	>8 hrs.
" " " 80° C	0.5 hrs.	0.5 hrs.	0.5 hrs.	0.5 hrs.	0.5 hrs.
Curing cycle:	-----2 hrs. @ 100@120° C + optional 2-4 hrs. @ 120-160° C.-----				
Dielectric Constant/Dissipation Factor @ 60 Hz:					
23° C	3.4/.013	3.5/.014	4.0/.027	---	3.4/.014
100° C	2.66/.020	3.9/.036	4.9/.098	5.4/.088	4.2/.077
150° C	3.7/.025	4.31/.071	5.6/.142	---	4.5/.120
Volume Resistivity, Megohm@cm/23° C	8 x 10 <sup>14</sup> /47	6 x 10 <sup>14</sup> /47	3 x 10 <sup>14</sup> /47	---	4 x 10 <sup>14</sup> /47
Arc-Track Free, 2.5 KV, Minutes	>2000	>2000	>2000	>2000	>2000
Dielectric Strength, S/TV/mil	420	412	390	---	350
Deflection Temperature	150° C	118° C	126° C	<25° C	95° C
Thermal Shock Resistance (*)	6	8.8	7.4	10	8.6
Tensile Elongation	1.2%	2.2%	1.34%	---	---
Tensile Strength, psi	11,000	6,700	7,240	---	---
Tensile Modulus, psi	1,450,000	918,000	981,000	---	---
(*) : Scale 0-10 (poor to excellent thermo shock resistance)					

**ABOCAST 8103-26, ABOCAST 8103-27, ABOCAST 8103-28, ABOCAST 8103-29, ABOCAST 8103-30** are very similar in high heat conductivity, filler content, low thermal expansion and negligible shrinkage. The criteria for choice are evident in the above lists of physical and electrical properties.

The above information is the result of accurate laboratory and field tests. However, no guarantee, expressed or implied, is offered, as uses and applications are beyond our control. Specifications are subject to state-of-the-art changes.

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