ENGINEERING DATA SHEET
GRADE: SPAULDITE® ARK-2 LAMINATE SHEET

Reprint of: 0981 **Issued:** 1206

Spauldite® Grade ARK-2 is an aramid reinforced phenolic laminate. It is an extremely tough material with high temperature and superior wear capability. It has an extremely low coefficient of thermal expansion and is used where this criteria is critical.

MAJOR FEATURES

- Dimensional Stability
- High Wear Resistance
- High Strength
- High Temperature Capability

APPLICATIONS

Grade ARK-2 was developed as a superior replacement for asbestos based, high-pressure laminates. It can be used for high temperature rotor vanes and applications where high wearability is critical, with non-abrasive characteristics.

ELECTRIAL CHARACTERISTICS

Grade ARK-2 is designed primarily for wear applications although it could be used as an electrical insulation where voltages below 100 kV are involved.

MECHANICAL CHARACTERISTICS

This product's excellent dimensional stability and wear resistance at elevated temperatures make it desirable for rotor vanes and other wear applications.

Grade ARK-2 is the toughest laminate for high temperature applications that are non-abrasive. It may be used for applications where the glass grades are too abrasive.

FABRICATION

Grade ARK-2 can be fabricated by sawing, milling, drilling, grinding or other machining operations. However, the nature of this material requires some special handling, therefore, it is recommended that Grade ARK-2 be purchased from Spaulding as fabricated parts.

In addition to manufacturing Spaudlite® high pressure laminated sheets, tubes and rods, Spaulding has complete fabricating facilities for all types of machining, drilling and punching of laminated materials.

STANDARD SHEET SIZE[1]: 36" X 72"
48" X 36"
48" X 48"

COLOR: NATURAL

THICKNESS: .016" –.500"

[1] Contact Customer Service for availability of additional sheet sizes.

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PROPERTY CHARACTERISTICS

PROPERTY	ASTM TEST METHOD	CONDITIONING & TYPE OF TEST	THICKNESS INCHES	AVERAGE TYPICAL VALUES		SPECIFICATION VALUES	
				ENGLIGH	SI	ENGLISH	SI
MECHANICAL							
Bonding Strength	D-229	A D-48/50	.500 .500	TBD	TBD	NR	NR
Compressive Strength Flatwise	D-229	A	.196	55.0 ksi	379.2 MPa	≥40.0 ksi	≥275.8 MPa
Flexural Strength Flatwise	D-229	A Lengthwise Crosswise	 .196 .196	 32.2 ksi 31.5 ksi	(MPa) 222.0 217.2	 ≥22.8 ksi ≥23.6 ksi	MPa ≥157.2 ≥162.7
Modulus of Elasticity in Flexure	D-229	A Lengthwise Crosswise	 .196 .196	 1.37 msi 1.37 msi	(MPa) 9450 9450	 ≥1.23 msi ≥1.23 msi	MPa ≥8481 ≥8481
Flexural Strength	D-229	E-96/200:T-200 Lengthwise	.304	19.7 ksi	(MPa) 135.8	NR	NR
Modulus of Elasticity in Flexure	D-229	E-96/200:T-200 Lengthwise	.304	1.03 msi	(MPa) 7100	NR	NR
Flexural Strength	D-229	E-240/200:T-200 Lengthwise	.304	14.5 ksi	(MPa) 100.0	NR	NR
Modulus of Elasticity in Flexure	D-229	E-240/200:T-200 Lengthwise	.304	.79 msi	(MPa) 5447	NR	NR
Flexural Strength	D-229	E-480/200:T-200 Lengthwise	.304	9.96 ksi	(MPa) 68.7	NR	NR
Modulus of Elasticity in Flexure	D-229	E-480/200:T-200 Lengthwise	.304	.57 msi	(MPa) 3930	NR	NR
Izod Impact Edgewise Notched	D-229	A Lengthwise Crosswise	 .196 .196	 13.4 ft-lbs/in 13.8 ft-lbs/in	 .714 J/mm .735 J/mm	 ≥12.0 ft-lbs/in ≥12.0 ft-lbs/in	 ≥.640 J/mm ≥.640 J/mm
Tensile Stength	D-229	A Lengthwise Crosswise	 .196 .196	 25.1 ksi 23.1 ksi	MPa 173.6 159.3	 ≥18.8 ksi ≥17.3 ksi	MPa ≥129.6 ≥119.3
PHYSICAL							
Density	D-792	A	.196	.048 lbs/in^3	1.33 g/cm^3	≥.046 lbs/in^3	≥1.26g/cm^3
Rockwell Hardness	D-229	A	.196	M-108	M-108	NR	NR
Thermal Coefficient of Linear Expansion	D-696	A Lengthwise Crosswise	 .196 .196	5.3 X 10^{-6} In/in/°C 4.2 X 10^{-6} In/in/°C	5.3 X 10^{-6} In/in/°C 4.2 X 10^{-6} In/in/°C	≤7 X 10^{-6} In/in/°C ≤6 X 10^{-6} In/in/°C	≤7 X 10^{-6} In/in/°C ≤6 X 10^{-6} In/in/°C
Water Absorption	D-229	D1-24/23	.196	3.7%	3.7%	≤4.5%	≤4.5%