Process Gauge Case Construction
Pocan Thermoplastic vs. Plenco Phenolic

Thermoplastic and phenolic are common types of case materials used by pressure gauge manufacturers. The specific thermoplastic WIKA uses is Pocan B4225. According to third-party testing and ASTM standards, the Pocan thermoplastic material has many performance benefits compared to phenolic material in process applications, including:

- Low flammability
- High-impact resistance
- Good form stability
- Very low water absorption
- Low stress cracking susceptibility
- Good electrical insulating properties
- Good chemical resistance

Below is a side-by-side comparison of two brands of pressure gauges - a WIKA process gauge constructed with Pocan thermoplastic material, and the versions of Ashcroft's1279 Duragauge made with a Plenco phenolic material and polypropylene (a different thermoplastic material). This comparison is based on ASTM and UL test standards.

Pocan Thermoplastic, Plenco Phenolic Comparison

Material Properties	WIKA	Ashcroft	Test Method	Test Interpretation
Pressure Gauge Model	XSEL® Process Gauge (all models)	Ashcroft 1279 Duragauge (dry model)	--	--
Case Body Material	Thermoplastic Pocan B4225	Thermoset Plenco 02370	--	--
Case Ring Material	Thermoplastic Pocan B4225	Polycarbonate*	UL-94	V-0, self-extinguishing
Case Back Plate Material	Thermoplastic Pocan B4225	Polycarbonate*	UL-94	V-0, self-extinguishing
Material Color	Black, Red, Yellow	Black	--	--
Thermal Properties	WIKA	Ashcroft	Test Method	Test Interpretation
Flammability	V-0 @ 1.6 mm Burning stops within 10 seconds on a vertical specimen; drips of particles are allowed as long as they are not inflamed.	Test data not publicly available.	UL-94	WIKA XSEL process gauge has low flammability. V-0 is the best self-extinguishing rate per UL-94 in a vertical burn.

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Pocan Thermoplastic, Plenco Phenolic Comparison

Electrical Properties	WIKA	Ashcroft	Test Method	Test Interpretation
Dielectric Strength (short-time)	640 V/mil	283 V/mil	ASTM D149	Good electrical insulating properties
Arc Resistance	PLC 7 (< 60 secs)	PLC 5 (> 120 secs)	ASTM D495	Good arc resistance
Mechanical Properties	**WIKA**	**Ashcroft**	**Test Method**	**Test Interpretation**
Tensile Modulus	1,102,000 psi	1,240,000 psi	ASTM D638	Good material stiffness
Tensile Strength	17,200 psi	7,635 psi	ASTM D638	Capability of material to withstand a high load
Tensile Elongation	2.50%	0.80%	ASTM D638	Ability to deform under tensile stress
Flexural Strength	25,500 psi	11,806 psi	ASTM D790	High bending strength
Flexural Modulus	896,000 psi	1,118, 000 psi	ASTM D790	Good flexural deformation
Izod Impact (Notching Strength)	0.7 ft-lb/in	0.32 ft-lb/in	ASTM D256	High impact resistance
Water Absorption	0.08%	0.49%	ASTM D570	Very low water absorption

Prior to June 2017 the ring and back plate of the Ashcroft 1279 Duragauge dry version have been made from polypropylene, which third-party testing,and court testimony and rulings have shown is flammable. The material "burns, does not self-extinguish, and poses the risk of spreading fire whenexposed to open flame. WIKA vs. Ashcroft, Civil Action 1:13-cv-00043-CAP, Final Amended Judgment, page 5. Ashcroft has since changed the to a polycarbonate material which was not part of the lawsuit. (see Ashcroft 1279 data sheet)*

For a definition of test methods for thermal, electrical and mechanical properties for: UL-94. ASTM D149, ASTM D495, ASTM D638, ASTM D790, ASTM D256 and ASTM D579, please consult the following link: https://www.plenco.com/data/glossary.pdf.

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