

## K-FLEX DUCT® LINER GRAY versus ARMACELL AP/ COILFLEX®

There is a lot of confusion in the specifying / engineering community regarding the key physical attributes of AP/Coilflex. This confusion stems from the *lack of information* provided on the AP/Coilflex data sheet (dated 02/2015). AP/Coilflex and K-Flex Duct Liner Gray are *significantly different*, and AP/Coilflex should not be considered an equal to K-Flex Duct Liner Gray. K-Flex Duct® Liner Gray is the only flexible *closed-cell* sheet insulation material designed specifically for use in air handling systems. Because it was designed with these applications in mind, it offers superior performance and installation advantages that no other closed-cell or open-cell liner can match.

The table below provides a comparison of key performance differences between K-Flex Duct Liner Gray and Armacell AP/Coilflex.

Property	K-Flex Duct Liner Gray	AP/Coilflex
Material Type	NBR / PVC Closed Cell Elastomeric  Non-fibrous	1" – NBR/PVC Open Cell Elastomeric 1.5" – EPDM Open Cell Elastomeric  Non-fibrous
ASTM E84 25/50 Rated	Maximum 2" thickness	Maximum 1.5" thickness
Maximum Operating Temperature	220°F (200°F w/ optional PSA)	180°F
ASTM C534	Type II, Grade 1	Does not comply due to open cell structure, maximum operating temperature and lack of published test data.
ASTM C1534	Type I – Closed Cell  Note: Does not meet Type I sound absorption requirement at 125Hz frequency for 1" thickness (0.06 actual vs 0.15 specified). Exceeds 1" NRC requirement (0.55 vs 0.40 specified.)	Type is Not Stated on data sheet.  No data published to confirm conformance for Type II – Open Cell. Does not meet Type II sound absorption requirements at 125, 1000, 2000 and 4000 Hz frequencies for 1" thickness.
R-value @ 1" thickness	4.2	4.2
Water Vapor Permeability (ASTM E96)	<0.06 perm-in	Not Stated
Water Absorption (ASTM C209)	<0.2%	Not Stated
Water Vapor Sorption (ASTM C1104)	Pass	Not Stated
NRC (ASTM C423)	0.55 @ 1"	0.60@1"
STC (ASTM E90) @ 1" thickness	12, 27 adhered to galvanized steel	Not Stated

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Sound Insertion Loss (db) at Frequency (Hz)	125 = 1, 250 = 3, 500 = 20, 1000 = 7, 2000 = 12, 4000 = 12, 8000 = 12	Not Stated
Low VOC	UL GREENGUARD / GREENGUARD GOLD Certified	UL GREENGUARD / GREENGUARD GOLD Certified
Integral Mold Inhibitor	EPA Registered Proprietary Mold Inhibitor added	Contains Microban
Mold Resistance	UL Validated Mold Resistant	Not UL Validated
Installation Methods	Solvent based adhesive, water based adhesive, factory-applied pressure sensitive adhesive (“peel and stick”)	Solvent based adhesive, water based adhesive

While AP/Coilflex is non-fibrous, it is *not* a closed cell lining material. As such, it would be susceptible to water absorption and wicking and resultant loss in insulation value. In addition, because of its ability to hold moisture, it would be susceptible to mold growth resulting from dirt build up, it would be more difficult to clean and it would be more likely to hold odors than a closed cell material.

The difference in NRC between AP/Coilflex and K-Flex Duct Liner Gray is negligible. The assumed advantage of AP/Coilflex is that it can be installed on an automated coil line due to its ability to allow water based adhesives to dry (through the open cells) and due to the added flexibility of an open cell material that allows a greater liner thickness to bend on a coil line without forming a radius and gap in the corner / bend. While this may be true, it is also true that there have been complaints about the width and thickness control of the open cell material and stretching / necking during installation. Because of its extreme softness and open cell structure, AP/Coilflex can compress during storage, and because it is open cell, it has very poor recovery characteristics when compared to a closed cell elastomeric liner. AP/Coilflex is only available in two thicknesses, and the full range of widths is only available in the 1” thickness. K-Flex Duct Liner Gray is available in the full range of widths (46.25 – 60”) in thicknesses from ½” to 2”.

We hope that this information is of value to owners and specifiers who are looking for an IAQ friendly duct lining material. We trust that once you have reviewed all of the information, you will choose K-Flex Duct Liner Gray for your duct lining applications. Please contact K-Flex USA technical support should you have any questions or require additional information.

