ASTM C534 – Breaking Down the Standard for Closed-Cell Elastomeric Insulation

ASTM International is a global nonprofit standards setting organization for numerous construction products. Mechanical insulation for piping, ductwork, and equipment is no exception.

Standard specifications have been established by ASTM for mechanical insulation products and accessories, such as adhesives, tapes, jackets, sealants and coatings. Specifications are broken out into sections such as classifications, materials, physical requirements, standard shapes, sizes, and dimensions, surfaces, workmanship, finish, and appearance, sampling, test methods, inspection, rejection, packaging and marking, and keywords.

ASTM standards are also periodically revised/updated with the year as a suffix (i.e. ASTM C534-25).

ASTM C534 *"Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form"* specifies well-known "physical requirements" such as thermal conductivity, water absorption, water vapor permeability, linear shrinkage, austenitic stainless steel corrosion testing, chloride/fluoride ion levels, and dimensional tolerances.

Under the classification section, ASTM C534 further specifies ***Type*** and ***Grade*** for closed-cell elastomeric insulation. How are type and grade defined?

Type:
⇒ **Type I = Tubular** (preformed pipe insulation tubes for piping)
⇒ **Type II = Sheet** (sheets and rolls for large piping, equipment, and ductwork)

Grade:
⇒ **Grade 1** = flexible elastomeric material for use on typical commercial systems with a maximum use temperature of -297 to 220ºF (-183 to 104ºC)
Note – AEROFLEX EPDM™ is manufactured as Grade 1
⇒ **Grade 2** = high temperature flexible elastomeric material with a maximum use temperature of -297 to 300ºF (-183 to 150ºC)
Note: Grade 2 typically applies to specific OEM applications
⇒ **Grade 3** = elastomeric material that contains a maximum of 200 ppm of leachable chlorides and fluorides with a maximum use temperature of -297 to 250ºF (-183 to 120ºC)
Note: also known as "halogen free" or "non-halogen", applications apply to austenitic stainless steel substrates and marine (ships, surface vessels, and submarines)

Source: https://store.astm.org/c0534_c0534m-20a.html