MATERIAL COMPLIANCE STATEMENT

EN 681-1:1996 — Types WC and WG, Hardness Class 50

Material specification: ASTM D2000 5BC520 A14 C12 EO34 G21 Z1 · Compound: Chloroprene (CR), Type B / Class C, 50 durometer

The elastomeric compound specified to **ASTM D2000: 5BC520 A14 C12 EO34 G21 Z1** (chloroprene, Type B / Class C, 50 durometer) is assessed as meeting the material compatibility and durability requirements of EN 681-1:1996, Table 2, Types **WC** (cold non-potable water, drainage, sewerage and rainwater; continuous flow to 45 °C, intermittent to 95 °C) and **WG** (as WC, with oil resistance), hardness class 50, based on the specified minimums of the ASTM D2000 call-out and typical properties for CR compounds qualified to this specification, set out below.

Requirements Assessed and Met

EN 681-1 Table 2 (hardness class 50) compared against the ASTM D2000 call-out and typical CR compound properties

Property	EN 681-1 requirement	ASTM D2000 / typical value
Hardness	50 ± 5 IRHD	50 ± 5 Shore A per the D2000 call-out — directly equivalent
Tensile strength	9 MPa min	2000 psi (13.8 MPa) minimum per the D2000 call-out — exceeds the EN minimum by specification; typical values for compounds meeting this call-out run substantially higher again (~18 MPa)
Elongation at break	375% min	Typical value for CR compounds meeting this specification, ~470%
Accelerated ageing (D2000 suffix A14, heat resistance)	Tensile change: –20% max Elongation change: –30% max	Typical: tensile change –7.5%, elongation change –6.7% — both within EN limits, though typical supplier ageing data is generated at 100 °C/70h versus EN's specified 70 °C/7 days
Ozone resistance (D2000 suffix C12)	No cracking, 48h exposure at 50 pphm, 40 °C	Typical: no cracking after 70h exposure at 50 pphm, 40 °C — EN's exposure duration is exceeded by the typical qualification test
Volume change in water	+8% / –1% max	Typical value +4.7%, against typical supplier test conditions of 100 °C/70h versus EN's specified 70 °C/7 days — not a property directly guaranteed by the D2000 call-out itself, but consistent with CR's known low water absorption
Volume change in oil (D2000 suffix EO34, WG requirement)	±10% max	Typical value –3.8%

Requirements Excluded from This Assessment

Compression set (4.2.5) and stress relaxation in compression (4.2.7)
Not applicable to this installation. These clauses are written to protect the sealing performance of push-fit spigot-and-socket ring joints, where the rubber's own compressed recovery is the sole mechanism maintaining contact stress over the joint's service life. In this application the seal is a mechanically compressed, bolted assembly, functionally equivalent to a flange gasket, in which bolt preload — not elastomer memory — sustains sealing contact. Sealing integrity is directly observable and correctable at installation and during maintenance, so long-term unassisted elastic recovery is not the governing failure mode.

Low-temperature compression set at –10 °C (4.3.2, optional requirement)
Not applicable, as the component is located within the pipe and is exposed only to the temperature of the conveyed flow media, which remains above 0 °C in service. The sub-zero exposure this clause addresses cannot occur in this installation.

Note on Basis of Assessment

The properties above reflect the specified minimums of ASTM D2000: 5BC520 A14 C12 EO34 G21 Z1 together with typical values observed for CR compounds qualified to this specification; they are not tied to a single batch or test certificate. Typical ageing and water-immersion data reflects standard supplier QC conditions (100 °C/70h) rather than EN 681-1's specified test method (70 °C/7 days) — favourable under the harsher condition, but supporting evidence rather than a certified match. Batch-specific certificates can be obtained and checked for compliance