J.M. LUAN, S.L.
Barrio la Sota s/n · ES48190 Sopuerta (Vizcaya) · Spain
Tel. (34) 94 610 49 44 · www.jmluan.com · migsolaeche@jmluan.com

PRODUCT TECHNICAL DATA SHEET

EBONITA AL

Hard rubber lining · Base: natural rubber (NR)

HARDNESS	THICKNESS	DRINKING WATER
75 ±5	**2–10**	**Certified**
Shore D · 23 °C	mm per sheet	WRAS no. 2210520 · FDA 21 CFR 177.2600

DESCRIPTION

Hard rubber lining based on natural rubber (NR), vulcanised in autoclave. Rubber sheet thickness ranges from 2 to 10 mm. EBONITA AL holds drinking-water certifications WRAS no. 2210520 and FDA 21 CFR 177.2600, which are critical and must be strictly observed.

SUBSTRATE

Steel surfaces must be blast-cleaned in accordance with DIN EN 14879-1 to a surface roughness (Rz) ≥ 50 µm. The primer must be applied immediately after blasting to prevent rust formation.

Stainless steel must be blasted with non-ferritic abrasives. Grey cast iron must be tempered in autoclave before blasting.

Substrate temperature should be approximately 10 to 30 °C, at least 3 K above the dew point. Between +5 °C and +10 °C, the margin above the dew point must be at least 5 K and relative humidity ≤ 75 %.

The substrate must be kept dry during application and unvulcanised material must be protected from moisture.

ADHESIVES

JENETACK-31V · JENETACK-41N · JENEUNION-15R

Cleaning solvent: JML-diluent XL

STEEL SUBSTRATE	PRODUCT	CONSUMPTION	WAITING TIME
Brush-applied primer	**JENETACK-31V**	200 g/m²	min. 3 hours / max. 2 days
Brush-applied adhesive	**JENEUNION-15R**	250 g/m²	min. 2 hours / max. 5 days

SHEET BONDING

Sheets must be applied to the adhesive-coated steel without stretching, pressing them firmly with a roller or spatula. Pay special attention to joints, edges and corners.

INTERNAL PIPE LINING

DN < 50	The rubber hose is soaked generously with JML-diluent XL, inserted wet into the pipe and pressed against the walls once the solvent has evaporated.
DN 50 – DN 125	The hose is coated internally with JENEUNION-15R and left to flash off for at least 30 minutes. It is inserted into the pipe with compressed air and pressed with a greased plug.
DN 125 – DN 500	The hose is prefabricated and inserted using non-stick fabric. A greased plug ensures correct adhesion without blistering.

VULCANISATION

Hot air

Heating	120 min to 138 °C
Plateau	240–255 min at 138 °C
Cooling	120–240 min to 80 °C

Direct saturated steam

Pre-pressure	approx. 1 bar compressed air
Heating	60 min to 110 °C
2nd heating	60 min to 143 °C
Holding time	180 min at 143 °C (approx. 3.2 bar)
Cooling	6 hours to 50 °C

J.M. LUAN, S.L.
Barrio la Sota s/n · ES48190 Sopuerta (Vizcaya) · Spain
Tel. (34) 94 610 49 44 · www.jmluan.com · migsolaeche@jmluan.com

AUTOCLAVE VULCANISATION

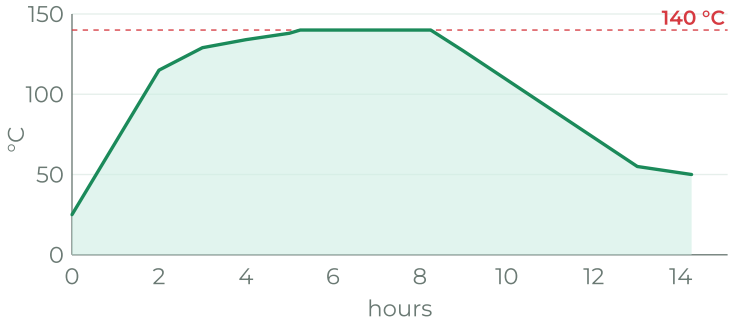
Proposed vulcanisation cycles

Recommended temperature curves for EBONITA AL by autoclave type.

Heating stages may be adjusted to the thermal inertia of the part; the plateau and cooling must be observed.

Autoclave no. 1

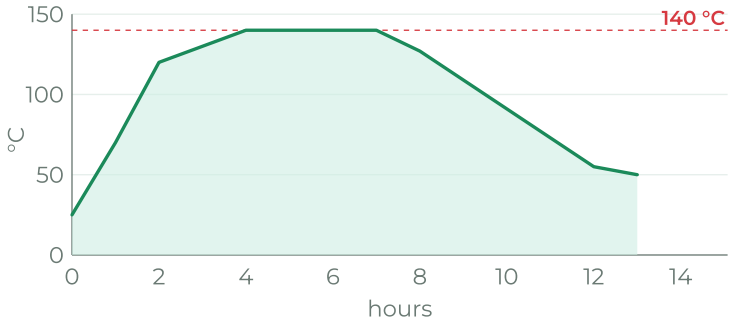
Total duration ≈ 14 h 15 min



Stage 1	Heat to 115 °C in 120 minutes
Stage 2	Heat to 140 °C in 195 minutes
Stage 3	Hold at 140 °C for 180 minutes
Stage 4	Cool to 50 °C over at least 6 hours

Pirelli autoclaves and drums

Total duration ≈ 13 h



Stage 1	Heat to 120 °C in 120 minutes
Stage 2	Heat to 140 °C in 120 minutes
Stage 3	Hold at 140 °C for 180 minutes
Stage 4	Cool to 50 °C over at least 6 hours

TESTS AFTER VULCANISATION

- **Visual inspection** for defects
- **Thickness:** magnetic-inductive gauge (≥ nominal value –10 %)
- **Hardness:** 75 ±5 Shore D at 23 °C
- **Adhesion:** hammer and chisel percussion test

REPAIR MATERIAL

EBONITE PASTE (FO1A & FO1B)

STORAGE

EBONITA AL can be stored for up to **6 months at a maximum of +25 °C** or up to **18 months at +5 °C** without loss of quality.

J.M. LUAN, S.L.
Barrio la Sota s/n · ES48190 Sopuerta (Vizcaya) · Spain
Tel. (34) 94 610 49 44 · www.jmluan.com · migsolaeche@jmluan.com

SAFETY

Ensure adequate ventilation during mixing and application. Avoid open flames, heat sources and smoking. Handle products in accordance with current safety regulations.