

13 Elastomer springs

Resistance to chemical agents

The table shows the behaviour of ELES A PEB and PES products in the presence of various chemical agents with which they may come into contact in an industrial environment (acids, bases, solvents, lubricants, fuels, aqueous solutions) and provides for three classes of behaviour:

- good resistance = the product functional and aesthetic properties remain unchanged;
- fair resistance = effects on the functional and/or aesthetic properties, depending on the type of product and the working conditions with some limitations of use according to the specific application;
- poor resistance = product susceptible to chemical aggression. Not recommended for use.

| Resistance to chemical agents |        |                      |        |                          |        |
|-------------------------------|--------|----------------------|--------|--------------------------|--------|
| Material                      | Effect | Material             | Effect | Material                 | Effect |
| Acetone                       | ▲      | Paraffin             | ▲      | Mineral oil              | ●      |
| Acetic acid 20%               | □      | Glue                 | ●      | Oil SAE 70°C             | ●      |
| Hydrochloric acid 20%         | ▲      | Ethylene glycol      | □      | Carbon monoxide          | ●      |
| Formic acid                   | ▲      | Phenol               | ▲      | Tetrachloroethylene      | ▲      |
| Nitric acid 10%               | ▲      | Freon - 11°C         | □      | Boric acid sol.          | ●      |
| Oleic acid                    | □      | Freon - 12°C +54°C   | ●      | Calcium bisulphite sol.  | ●      |
| Sulfuric acid 50-80%          | ▲      | Freon - 22°C         | ▲      | Magnesium chloride sol.  | ●      |
| Tannic acid 10%               | ●      | Glycerine            | ●      | Copper chloride sol.     | ●      |
| Tartaric acid                 | ●      | Sodium hydroxide 46% | ●      | Trisodium phosphate sol. | ●      |
| Water 50°C                    | ●      | Hydrogen             | ●      | Ammonium hydroxide sol.  | ●      |
| Ethyl alcohol                 | ▲      | Mercury              | ●      | Calcium hydroxide sol.   | ●      |
| Methyl alcohol                | ▲      | Butanone             | ▲      | Soap sol.                | ●      |
| Carbon dioxide                | ●      | Naphtha              | □      | Copper sulphate sol.     | ●      |
| Petrol                        | □      | Hydraulic oils       | ●      | Carbon tetrachloride     | ▲      |
| Benzene                       | ▲      | Lubricant oils       | □      | Toluene                  | ▲      |
| Butane                        | ●      | Oil ASTM 70°C        | ●      | Turpentine               | ▲      |

● Good resistance; □ Moderate resistance; ▲ Poor resistance

Operating temperature

The table provides general indications for choosing PEB and PES products. Use at temperatures between 60 and 100°C is tolerated but involves a significant reduction in the technical specifications. Prolonged exposure to the maximum operating temperature may also lead to a significant deterioration in the mechanical characteristics compared to the nominal values.

| Operating temperature | PEB-80 / PES-80<br>(blue) | PEB-90 / PES-90<br>(orange) | PEB-92 / PES-92<br>(red) |
|-----------------------|---------------------------|-----------------------------|--------------------------|
| -40 °C / -20 °C       | ▲                         | ▲                           | ▲                        |
| -20 °C / +15 °C       | ●                         | ●                           | ▲                        |
| +15 °C / +60 °C       | ●                         | ●                           | ●                        |
| +60 °C / +100 °C      | □                         | □                           | □                        |
| > 100 °C              | ▲                         | ▲                           | ▲                        |

● Recommended use; □ Tolerated use; ▲ Inadvisable use

