EN **Product Information**

Elan-tech ®

# ADH 90.91

## AS 90/AW 91

## 100:45 by weight

**Sales office South Europe:**
ELANTAS Italia S.r.l.
Strada Antolini n° 1 loc. Lemignano
43044 Collecchio (PR)
Italy
Tel +39 0521 304777
Fax +39 0521 804410
EEMEurope.ELANTAS@altana.com
info.elantas.italia@altana.com
www.elantas.com

ELANTAS

| | Resin | Hardener | Mixing ratio by weight |
|---|---|---|---|
| **Structural adhesive** | **AS 90** | **AW 91** | **100:45** |
| | | | Mixing ratio by volume |
| **Cartridges kit** | **ADH 90.91** | | **100:50** |

**Applications:** resilient structural bonding of large surfaces. Structural adhesive for nautical applications. Assembly of heterogenous materials, glass, metals, wood, composite materials.

**Processing:** Spatula application or with mixing/dispensing devices.
Room temperature or hot curing. The post-curing by subministration of heat is necessary to achieve the thermal resistance indicated in the data sheet. Also available in cartridges of 400 ml.

**Description:** Two component modified, thixotropic epoxy system. Solvent free. Easy mixing ratio 2:1 by volume. High toughness. Very good thermal shock resistance. The system also cures at a lower temperature than 20°C. Sag resistance up to 10 mm.

## SYSTEM SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **Resin** | | | | | |
| Viscosity at: | 50°C | IO-10-50 (EN13702-2) | mPas | 180.000 | 300.000 |
| **Hardener** | | | | | |
| Viscosity at: | 25°C | IO-10-50 (EN13702-2) | mPas | 85.000 | 130.000 |
| Pot life | (50mm;200ml) | IO-10-53 (*) | min | 20 | 30 |

## TYPICAL SYSTEM CHARACTERISTICS

| | | | | | |
|---|---|---|---|---|---|
| **Processing Data** | | | | | |
| Mixing ratio by weight | | for 100 g resin | g | 100:45 | |
| Mixing ratio by volume | | for 100 ml resin | ml | 100:50 | |
| Resin Colour | | | | Milky | |
| Hardener Colour | | | | Orange | |
| Viscosity at: 25°C Resin | | IO-10-50 (EN13702-2) | mPas | 350.000 | 450.000 |
| Density at: 25°C Resin | | IO-10-51 (ASTM D 1475) | g/ml | 1,16 | 1,20 |
| Density at: 25°C Hardener | | IO-10-51 (ASTM D 1475) | g/ml | 0,97 | 1,00 |
| Pot life | 25°C (40mm;100ml) | IO-10-53 (*) | min | 35 | 45 |
| Exothermic peak | 25°C (40mm;100ml) | IO-10-53 (*) | °C | 125 | 140 |
| Initial mixture viscosity at: | 25°C | IO-10-50 (EN13702-2) | mPas | 145.000 | 225.000 |
| Gelation time | 25°C (1mm) | IO-10-88 (ASTM D5895-03) | h | 5 | 6 |
| Setting time | 25°C 0,1 mm | (*) | h | 6 | 7 |
| Suggested curing cycles | | (**) | | 5 h 70°C | |

# ADH 90.91 - AS 90/AW 91

## TYPICAL CURED SYSTEM PROPERTIES

**Properties determined on specimens cured: 5 h 70°C (except different specifications)**

| | | | | | |
|---|---|---|---|---|---|
| Colour | | | | Orange | |
| Density 25°C | | IO-10-54 (ASTM D 792) | g/ml | 1,09 | 1,13 |
| Hardness 25°C | | IO-10-58 (ASTM D 2240) | Shore D/15 | 73 | 77 |
| Glass transition (Tg) | 48h 15°C | IO-10-69 (ASTM D 3418) | °C | 40 | 47 |
| | 24h RT | | °C | 40 | 47 |
| | 7 days RT | | °C | 50 | 57 |
| | 5h 70°C | | °C | 75 | 80 |
| Max recommended operating temperature | | (***) | °C | 80 - 90 | |
| Shear strength by tension: | | | | | |
| - Inox steel AISI 316 cured 8hRT (tested RT) | | IO-10-80 (ASTM D 1002) | MPa | 1,5 | 2,0 |
| - Inox steel AISI 316 cured 48h15°C (tested RT) | | | MPa | 21,5 | 26,0 |
| - Inox steel AISI 316 cured 24hRT (tested RT) | | | MPa | 22,0 | 27,0 |
| - Inox steel AISI 316 cured 7days RT (tested RT) | | | MPa | 24,5 | 29,5 |
| - Inox steel AISI 316 cured 5h70°C (tested RT) | | | MPa | 25,5 | 31,0 |
| - Aluminium cured 48h15°C (tested RT) | | | MPa | 19,5 | 23,5 |
| - Aluminium cured 5h70°C (tested RT) | | | MPa | 24,5 | 29,5 |
| - Aluminium cured 5h70°C (tested 60°C) | | | MPa | 21,5 | 26,0 |
| - Aluminium cured 5h70°C (tested 80°C) | | | MPa | 13,5 | 16,5 |
| Flexural strength | | IO-10-66 (ASTM D 790) | MN/m² | 70 | 80 |
| Strain at break | | IO-10-66 (ASTM D 790) | % | 4,5 | 7,5 |
| Flexural elastic modulus | | IO-10-66 (ASTM D 790) | MN/m² | 2.000 | 2.500 |
| Tensile strength | | IO-10-63 (ASTM D 638) | MN/m² | 45 | 55 |
| Elongation at break | | IO-10-63 (ASTM D 638) | % | 4,5 | 6,5 |

IO-00-00 = Elantas Italia's test method. The correspondent international method is indicated whenever possible.
nd = not determined na = not applicable RT = TA = laboratory room temperature (23±2°C)
Conversion units: 1 mPas = 1 cPs 1MN/m2 = 10 kg/cm2 = 1 MPa

(*) for larger quantities pot life is shorter and exothermic peak increases
(**) the brackets mean optionality
(***) The maximum operating temperature is given on the basis of laboratory information available being it function of the curing conditions used and of the type of coupled materials. For further possible information see post-curing paragraph.

## ADH 90.91 - AS 90/AW 91

**Instructions:** The surfaces must be clean and dry. Generally a mechanical abrasion or sanding followed by degreasing with solvent (ex. acetone) is sufficient. Add the appropriate quantity of the hardener to the resin, mix carefully. The final cleaning of the equipment can be carried out with normal solvent such as acetone, nitro, etc.

**Curing Post-curing:** Post curing is always advisable for RT curing systems in order to stabilize the component and to reach the best properties. It is necessary when the component works at a high temperature.

**Storage:** Epoxy resins and their hardeners can be stored for two years in the original sealed containers stored in a cool, dry place. The hardeners are moisture sensitive therefore it is good practice to close the vessel immediately after each use.

**Handling precautions:** Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

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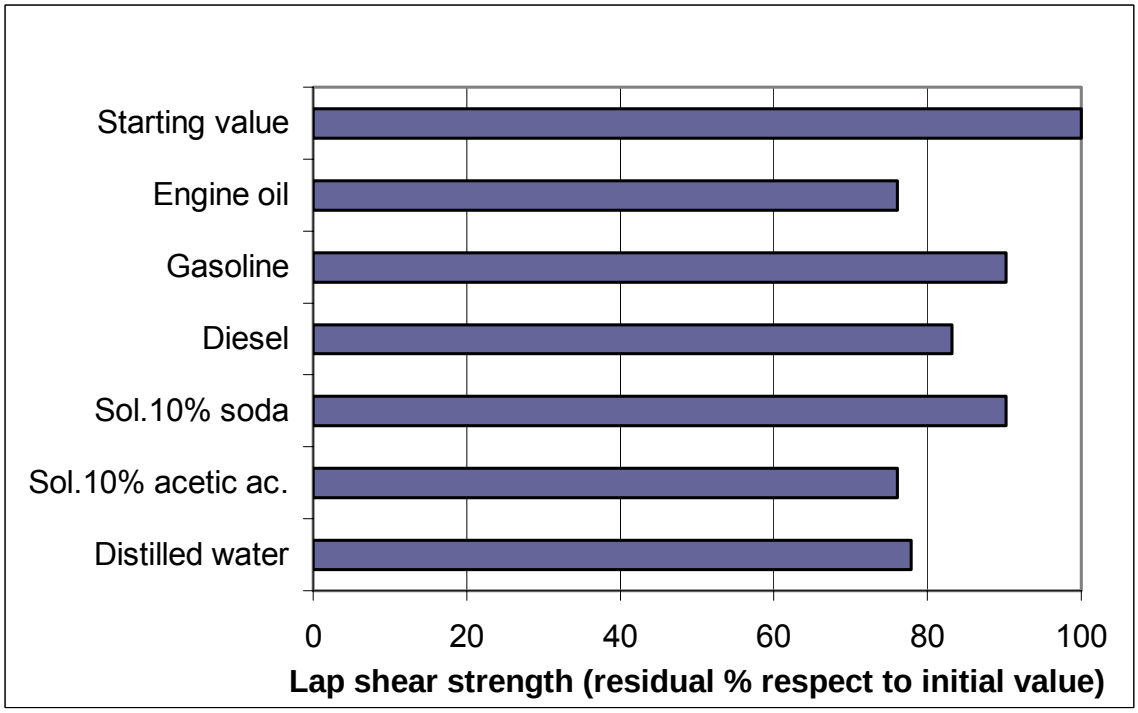
|---|---|---|
| emission date: | February | 2007/R&S |
| revision n° 02 | July | 2007/R&S |

## ADH 90.91 - AS 90/AW 91

Lap shear strength
after immersion in different liquid media
(ASTM D1002)




Support: stainless steel
Curing cycle: 5h 70°C
The lap shear strength was determined after immersion for 30 days at 23±2 °C.