



**Alchemy**<sup>®</sup>  
Oilfield Services Limited

Unit 19d, Camiestone Road, Thainstone Business Park, Inverurie, Aberdeenshire, AB51 5GT Phone +44 (0) 1467 672100

## Alchemy HDCeal<sup>®</sup> Range

### Description

Alchemy HDCeal<sup>®</sup> range of sealing materials (HDCeal<sup>®</sup> 100, HDCeal<sup>®</sup> 300 and HDCeal<sup>®</sup> CG) is a high density, flexible sealing system based on the application of a fluid material which sets and cures in a time dependent system. The material is deployed as a two part system which is mixed at the work site before being injected into the area in which sealing is required. The application work time and the setting and curing time may be varied by the relative proportions of chemicals (Base and Catalyst) added together and injected into the required area. The ambient temperature as well as the temperature of the application area will also be related to the pumping/working time/pot life and curing time of the product.

### Applications

The HDCeal<sup>®</sup> range of materials is extremely effective in grouting and clamp repair systems, isolating pipeline and manifold areas and sealing valve casing leaks as well as valve stem packing areas and areas where safety issues require a sealing system to be deployed. The material can also be used in wellhead areas as an emergency repair system, for casing hanger joints, other gallery areas or where o-ring seals may have lost integrity.

### Stability

Due to the unique and inert nature of the materials used in the manufacture of the HDCeal<sup>®</sup> range of products the system is very stable to chemicals and fluids normally found in the oilfield (oil, water, gas, saline, sweet and sour conditions) as well as a wide range of temperatures in service. The system is flexible and self energising and, dependant on the sealing cross sectional area, high pressure may be effectively contained in various systems. As the HDCeal<sup>®</sup> product range is self bonding it can cope with changes in temperature within the sealing area compared to highly adhesive products which will crack and lose integrity if subjected to temperature stress.

### Additional Features

The product has additional environmental features and the components used and final product made are non hazardous materials which are recognised by the American FDA for repeated use with food products under regulation 21CFR177.2600 Polymers- Articles intended for repeated use and 21CFR175.300 Adhesives and Components of Coatings – Resinous and polymeric materials.

### Typical Product Data

#### Uncured Properties

In general the Base material is a white viscous liquid and the Catalyst or Curing Agent is a blue/pastel blue viscous liquid. When these two components are mixed together a uniform pastel blue colour in the final product indicates that even mixing has been achieved. If required, colouring of Base and/or Catalyst can be varied to meet customer requirements.

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|                                    |                             |
|------------------------------------|-----------------------------|
| Colour of Base                     | White                       |
| Colour of Catalyst or Curing Agent | Blue/Pastel Blue            |
| Colour of evenly mixed product     | Pastel Blue                 |
| Viscosity of mixed material        | 10,000 to 20,000 cps approx |
| Density                            | 1.1 - 1.2 approx            |
| Pot life at Ambient Temperature    | ca. 1 - 8 hours             |
| Cure Time at Ambient Temperature   | 12 - 72 hours               |
| Recommended Storage temperature    | below 30°C                  |

#### **Cured Properties**

|                             |                              |
|-----------------------------|------------------------------|
| Hardness, Shore A Durometer | 40 – 50                      |
| Elongation, %               | 175%                         |
| Tensile Strength            | 450 – 510psi                 |
| Tear Strength               | 20 lb/in                     |
| Shrinkage, %                | 0.5                          |
| Thermal Conductivity        | <0.30 W/mK                   |
| Coefficient of Expansion    | $25 \times 10^{-5}$ cm/cm °C |
| Specific Heat               | 0.35 cal/gm °C               |
| Dielectric Strength         | 18.0 kV/mm                   |
| Operating temperature range | -50 to 200°C                 |

#### **Supply**

The product is supplied in kits containing the relevant Base and Curing Agent amounts to meet client's requirements. The Kits are available in 1 - 20 litres. Larger amounts may be supplied upon request.

The above properties are typical of the range of HPS HDCeal<sup>®</sup> materials but the data presented is not a specification for any single product in the range.

ALC HDC 01 Rev 2

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