

DRAGONKRAFT

THE BIO-RESIN SPECIALISTS

201H20 TECHNICAL DATA

Hardener system for use with Dragonkraft Resins and Booster with 20% renewable carbon content.

GENERAL DESCRIPTION

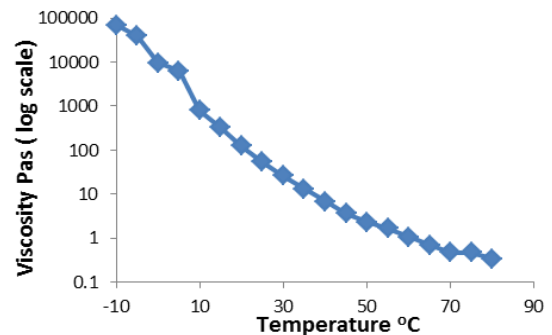
The Dragonkraft Hardener is designed to be used with the Dragonkraft resins and booster where they combine to form systems that are high strength with a flexible, non-brittle, non-chalking and low shrinkage finish. The Dragonkraft systems are also more tolerant of damp conditions and high temperatures making application and use easier in more testing environments.

Dragonkraft 201H20 has a renewable carbon content of 20% and is low odour, amine free and BPA free reducing the impact on the environment and improving user safety.

The addition of between 0 – 3% of Dragonkraft 301B00 booster will increase the cure speed and end hardness of the product. This can be tailored by the user to their own requirements depending on the end application and processing conditions.

PROPERTIES

Description	An Anhydride based hardener in a polymerisable solvent system
Appearance @ 45°C	Pale amber liquid
Density @25°C	1.235
Colour (Gardner)	5
Viscosity	See Graph opposite
Shelf Life	12 months in unopened container at <40°C



Tests in lab conditions show that the complete system with Dragonkraft 101R100 is tolerant of up to 1% water contamination with minimal effect on end properties at cure temps < 60°C.

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PHYSICAL PROPERTIES

The Resin/Hardener mix ratio

2:1 (by weight)

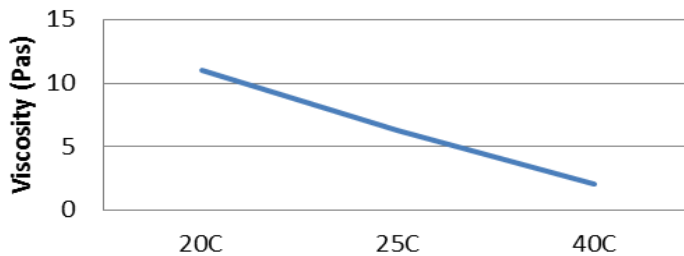
Booster ratio (added as % of Resin)

0 – 3%

Percent Booster	0%	1.5%	3%
Pot life	1hr 40m (80°C)	35 minutes (23°C)	18 minutes (23°C)
Tack dry	28 hours (80°C)	8 hours (23°C)	4 hours (23°C)
Cure	1 hour (160°C)	28 hours (23°C)	20 hours (23°C)
Shore D Hardness (14 days after 160°C, 1 hour cure)	30	55	57

Parameter	DK Result
Hardness (Shore D)	55
Tensile Strength	6MPa
Tensile Elongation	11%
Tensile Modulus	140MPa
Flexural Modulus	121MPa
Onset of Tg by DSC	94°C
Ultimate Tg	134-160°C
Gloss	90

2:1 ratio mix Viscosity



PREPARATION AND MIXING INFORMATION

- Before applying any of the Dragonkraft systems, ensure that the surface being bonded and coated are clean and free from grease/dirt.
- Example of mixing a Dragonkraft system below:

Take 100g of DK 101R100 and add 3g of DK 301B00, stir until the materials are well dispersed, being careful not to entrain too much air into the product (Note: this mixture is stable in indoor conditions but will cure in natural sunlight within 1 hour, so must be covered if left for a period of time). Add 50g of DK 201H20 stir thoroughly, again aiming not to entrain air. Apply to the surface of the material to be coated or to the composite material as you would for any other epoxy resin. Leave to harden, smoothing as necessary while the resin sets, or transfer to oven if curing at higher temperatures.

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CHEMICAL RESISTANCE

Tests carried out on samples heat cured at 160°C for one hour with 1.5% booster, aged for one week prior to emersion testing.

	Resistance	Appearance
Water	High	No visible change
99% Ethanol	High	No visible change
99% Methanol	Moderate	No visible change
60% HCl	Moderate	Darkening after 24hrs
Diesel	High	No visible change
Gasoline	High	No visible change
Acetone	Low	Softening in 3 hours

STORAGE

All components should be stored at room temperature in sealed containers to prevent moisture ingress and contamination. The 201H20 Hardener may form some crystals over time and will thicken at lower temperatures. The crystals formed will go back into solution on warming to 40-50°C.

SAMPLING

Samples of this novel technology are available but as all formulations are the propriety information of Dragonkraft Europe the standard Dragonkraft Non-disclosure agreement must be completed prior to any sample or MSDS being supplied.

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