

Cold Box Resin

CERACOLD R

(Phenolic Urethane Amine Cold Box Process)

Product Data Sheet

CERACOLD R 500 series is a highly reactive process for making sand cores in foundry by cold box process. This process does not require heat to cure & form a sand bond. The curing mechanism is instantaneous, core get cured within few seconds. The basic of process of bonding is poly – urethane technology, hence it is very much sensitive with contamination of moisture by any means. The success of process depends on quality of sand, dryness of air & tooling.

This binder system is consists of three constituents:

CERACOLD R – 501 : Phenolic Resin dissolved in solvent

CERACOLD H – 510 : Isocyanate, acts as a hardener.

CERACOLD C – 520 : Amine catalyst

CERACOLD R – 501 & **CERACOLD H – 510** are mixed with dry silica sand & mixed sand is cured within seconds, when **CERACOLD C – 520** is passed in gaseous form through sand mixture.

Typical Properties of CERACOLD

PRODUCT	CERACOLD R-501	CERACOLD H-510	CERACOLD C-520
COLOUR	Reddish brown	Reddish brown	Colourless to yellow
APPEARANCE	Clear Liquid	liquid	Liquid
SPECIFIC GRAVITY @30°C	1.05 – 1.10	1.18 - 1.20	0.71 – 0.73
VISCOSITY BY B4 CUP @30°C	40 – 120 second	14 – 19 seconds	N.A

Typical Sand Mix :

Dry silica sand (AFS No 50 – 60) : 100 parts

(Free from carbonate & chlorides)

CERACOLD R – 501 : 0.8 – 1.0 % BOS mix for 1-1½ minutes.

CERACOLD H – 510 : 0.8 – 1.0 % BOS mix for 1-1½ minutes.

CERACOLD C – 520 : 0.1 – 0.3 % BOS in gaseous form.

(**CERACOLD C – 520** requirement varies with quality of sand & tools)

THERMOCHEM PROCESSES PVT. LTD.

F-58, M.I.D.C. Gokul Shirgaon, Kolhapur -416234, Maharashtra (India)

Ph.No.91-231-2671204 Fax: +91-231-2671091 Email: info@thermochem.in Website: www.thermochem.in

Sand can be prepared by using both continuous & batch type mixer.

Bench life of prepared sand : 40-60 minutes (Keep under dry cover).

Typical Tensile Strength & other Properties:

Immediate : 6 – 8 kg/cm²
4 hours : 10 – 12 kg/cm²
24 hours : 12 – 14 kg /cm²
Gas evolution : 15 cc/gm max.

These properties may vary with quality of sand & ambient conditions.

Core Making Process :

CERACOLD process requires special core shooter with amine gas generator for making cores. Apart from core shooter, special precaution should be taken for dryness & cleanliness of air, which is used for blowing sand & for gas generator. The desired dew point of air is -40° C.

The prepared sand mixture is blown in the core box & gaseous CERACOLD C - 520 is passed through blown sand mass under controlled pressure & temperature. The excess CERACOLD C – 520 is removed from core by purging dry & warm air. The core is stripped from core box immediately. The typical cycle time for core making is less than a minute.

The contamination of moisture from any source will deteriorate the core quality.

Silent features of CERACOLD process:

1. Highest productivity than any other core making process.
2. No heat is required for curing, so tooling may be in wooden, plastic, aluminium is possible.
3. Excellent dimensional accuracy, since almost 100 % curing of core takes place in the core box.
4. Cores are ready for assembly or usage immediately after stripping.
5. Excellent surface finish of castings
6. Excellent shake out properties.



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7. Low gas evolution, hence, less gas related defects in castings.
8. Good resistance to casting defects like scab, veining or erosion.
9. Suitable for all types of metal.

Mould & Core Paints:

Water base paints are suitable, but air dry type solvent base paints can be used.

SHELF LIFE: Six month from the date of manufacture for all three resin components.

STANDARD PACKING:

CERACOLD R – 501 : 50 / 200 kg MS Barrel

CERACOLD H – 510 : 50 / 200 kg MS Barrel

CERACOLD C – 520 : 10 kg MS Drum

STORAGE & HANDLING :

Store under roof away from heat & moisture. Direct flame contact should be avoided.

While handling , prescribed safety measures should be used.

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