



UCON™ ULTRAQUENCH™ RL Plus

Non-nitrite, polymeric quenchant with excellent corrosion protection and improved bacteria resistance



Product Description

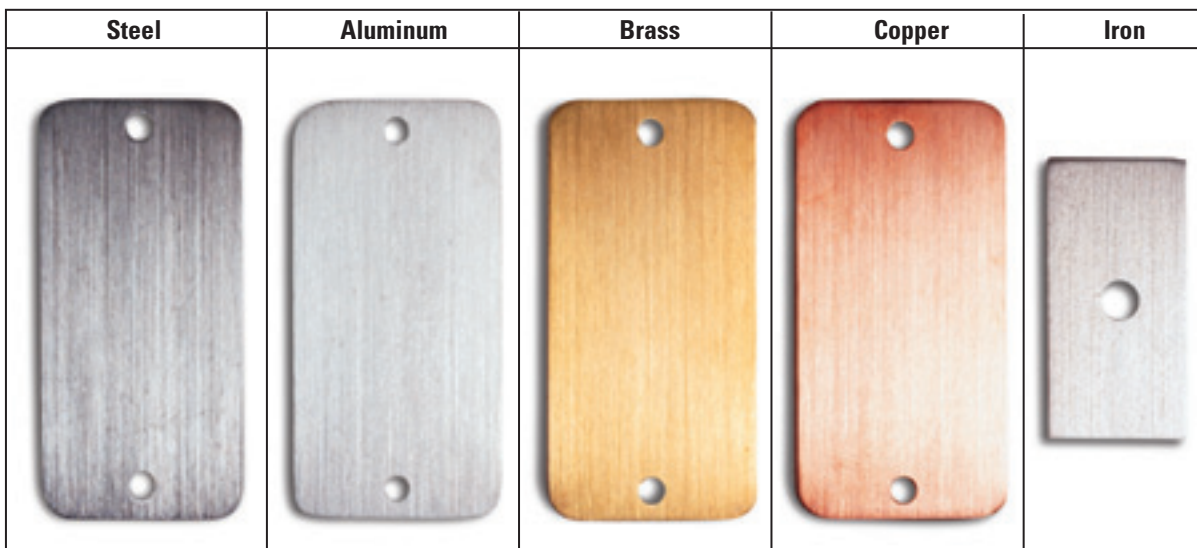
UCON™ ULTRAQUENCH™ RL Plus quenchant is a nonflammable, aqueous solution of a liquid organic polymer and a non-nitrite corrosion inhibitor with antimicrobial and foam protection. It is used for the quenching of medium-carbon to high-carbon steel and alloy steels of most grades, including 300 and 400 series stainless steels. UCON™ ULTRAQUENCH™ RL Plus is readily adapted to induction hardening, both spray and immersion quenching, for such items as spline shafts, gears, crankshafts, camshafts, and other pieces of intricate geometry and different metallurgy. UCON™ ULTRAQUENCH™ RL Plus may follow oxidizing, neutral, or protective atmosphere furnaces of shaker, rotary, batch or continuous design. This quenchant may be used for direct quenching from the forge, for continuous cast quenching, and for general hardening of forged and cast steels and cast irons.

UCON™ ULTRAQUENCH™ RL Plus is suitable for use in the hardening of:

- Large alloy parts from tilt-top, car-bottom and pit furnaces
- Forged parts that are quenched directly from the forge
- Sensitive shapes and alloys heated by induction
- Parts processed from continuous and batch-furnace operations employing gas-fired, neutral and carburizing-carbonitriding atmospheres.

UCON™ ULTRAQUENCH™ RL Plus quenchant exhibits cooling properties similar to its counterpart UCON™ Quenchant RL-NN. The product is color stable and is interchangeable with other UCON™ Quenchants.

**Figure 1: 200 Hour Corrosion Study, ASTM G 31
UCON™ ULTRAQUENCH™ RL Plus,13%**



Corrosion coupons submerged in 13% UCON™ ULTRAQUENCH™ RL Plus quenchant for 200 hours at 70°C. No corrosion or tarnishing was observed on any metal.

Features and Benefits

Corrosion Protection

UCON™ ULTRAQUENCH™ RL Plus is designed to provide superior corrosion protection for steel, iron, aluminum, brass and copper, and passes both ASTM G 31 and ASTM D 665A. See Figure 1 below.

Advantages and Features

- UCON™ ULTRAQUENCH™ RL Plus quenchant has a National Fire Protection Association (NFPA) rating of:
 - Health = 0
 - Flammability = 0
 - Reactivity = 0
- The optimum operating conditions for a specific metal or part may be determined by control of concentration, bath temperature and/or agitation.
- UCON™ ULTRAQUENCH™ RL Plus is compatible with other UCON™ Quenchant products.
- UCON™ ULTRAQUENCH™ RL Plus has lower deterioration and/or oxidation rates than PVA and soluble oil, minimizing replacement control. The major make-up requirement is for water lost through evaporation.
- The use of UCON™ ULTRAQUENCH™ RL Plus eliminates the smoke, soot and residues common to oil quenchants. Equipment maintenance and plant cleanliness are easier to achieve.
- UCON™ ULTRAQUENCH™ RL Plus is fully soluble in water and resistant to bacterial growth.
- UCON™ ULTRAQUENCH™ RL Plus will freeze below 0°C. It should be thawed to room temperature and mixed before use. The product will not be affected in any way.

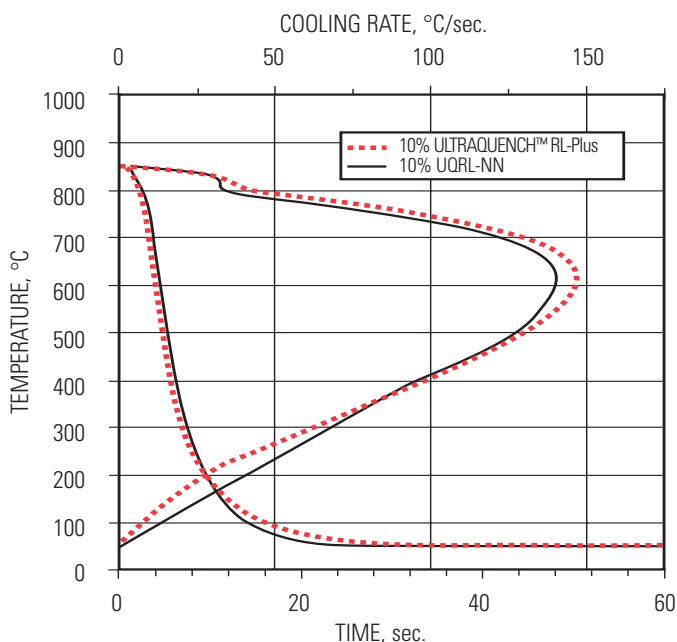
Typical Properties

Property [†]	UCON™ ULTRAQUENCH™ RL Plus
Weight, lbs/gal, 20°C	8.87
Specific Gravity, 20/20°C	1.064
Flash Point, °C, ASTM D 93	None
Pour Point, °C, ASTM D 97	-10 (14°F)
Viscosity, cSt, 40°C, ASTM D 445	230 - 280

[†]Typical properties, not to be construed as specifications

Cooling Performance

Figure 2: 10% UCON™ Quenchant RL-NN and UCON™ ULTRAQUENCH™ RL Plus



Comparison of cooling performance of 10% UCON™ RL-NN Quenchant and new UCON™ ULTRAQUENCH™ RL Plus at 49°C.

Product Use Precautions

Where this product is burned under conditions of relatively complete combustion, the major products are carbon dioxide and water vapor. Where this material is subjected to overheating (thermal degradation) but does not burn, the degradation products can be such things as organic acids (formic, acetic acids), aldehydes, esters, ketones, etc. Steam and small amounts of these organic vapors can evolve during the quenching process and can be irritating to the eyes, nose and throat or toxic if released in a poorly ventilated area. Good ventilation should be maintained in the area around quench tanks; this may require use of a special, local ventilation system in the immediate area where vapors are released.

Product Stewardship

Dow encourages its customers and potential users to review their applications from the standpoint of human health and environmental aspects. To help ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel will assist customers in dealing with environmental and product safety considerations. Dow literature, including Material Safety Data Sheets, should be consulted prior to use.



To Learn More...

For more detailed application information and product data
on UCON™ Quenchants, please call:

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