Soluble Cutting Oils

Tesla Solcut is a water soluble metalworking fluid of the traditional type. It is manufactured from high quality paraffinic base oils with added preservatives along with lubricity and anti-corrosion additives. The product is readily miscible with most mains water to form a stable, rich, milky white emulsion of low odour and good corrosion protection. Tesla Solcut is non-staining to both ferrous and non-ferrous alloys and may be used in a wide variety of applications e.g. Turning (including light automatic work), milling, drilling, boring and shaping. It has low odour, is economical, is phenol-nitrite free and provides good corrosion protection. Areas of application include General machining, free machining metals, non-critical grinding on both ferrous and non-ferrous alloys

Physical Characteristics*

Appearance (Emulsion)	Rich milky white
Relative Density @ 20 ℃	0.897
pH 2% in 200ppm hardness of water	9.1
Corrosion Breakpoint IP 287	4% (25:1)

Recommended concentrations are :General Machining 5% typical and Ferrous Grinding 4% typical. Higher concentrations may be employed e.g. up to 10% for more arduous applications.

Coolant Monitoring

Dilution: For hand mixing, always dilute to the required strength by adding the coolant concentrate to drinking quality water, and not in the reverse order. Metering or dosing equipment can carry out this function automatically. Freshly prepared dilutions can easily be checked for concentration using a pocket refractometer. Dilutions used for topping up frequently require to be adjusted to a lower concentration than the working strength to accommodate for drag-out and evaporation loss. **Never top up with plain water alone.** For working coolants, not too heavily contaminated with tramp oils, a reasonably accurate estimate of sump strength can be obtained.

REFRACTOMETER READING (% brix scale)	0.8	2.2	3.6	5.0	9.0	16.0
CONCENTRATION OF COOLANT (%V/V)	1	2.5	5.0	7.5	10.0	12.5
APPROX STRENGTH COOLANT:WATER	1:100	1:40	1:20	1:15	1:10	1:8

Coolant Care

Following a few straightforward good housekeeping practices will ensure a trouble free working life.
Start with a clean coolant system - purged with a good systems cleaner. Charge the sump with fresh coolant at the correct dilution for the operation and regularly monitor the concentration. Periodically remove, by suction filtration, metal fines and sludges, particularly in mixed metal machining Tramp Oils arise from positive loss lubricators, oily stock, hydraulics, etc. If allowed to build up in the system, tramp oils are the **most frequent cause of performance loss.** Their presence leads to bacterial degradation, de-emulsification, souring (pH drop) corrosion and poor finishes. On machines standing idle, anaerobic spoilage can be prevented by recirculating the coolant a few hours twice weekly. Tesla staff will be pleased to provide on-site technical advice and training on your specific coolant requirements.

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