



## TUBE DRAWING COMPOUNDS

### NON-FERROUS

**RichardsApex** has over one hundred years of experience in formulating and servicing the non-ferrous tube industry. This accumulated knowledge is coupled with contemporary technologies to meet the changing requirements of the tubing industry.

### R134a APPROVED COMPOUNDS

**TD-KC2** A low viscosity, highly polar film strength, ashless oil. The ideal lubricant of choice for optimum clean I.D. / O.D. surface quality for fine wall, capillary and "specialty" premium tube applications. High purity and solvent free, it can be applied easily using standard automated dispensing equipment.

**TD-KC3** A high purity, low viscosity oil that will burn off extremely clean during an annealing cycle without the need for prior cleaning. It is an ideal lubricant of choice for I.D. / O.D. applications when a bright, residual free surface that matches or exceeds most International "cleanliness" standards is required. Used for smooth and "grooved" tubing.

**TD-P92** A medium viscosity, clear versatile lubricant. It is formulated with special polar additives for good lubricity and burn off during the anneal of copper tubing in straight lengths and coils. Annealed metal will be extremely clean and bright. Ideally suited for A.C.R. tubing. Used on blocks and draw benches "as supplied" for drawing copper, aluminum and brass – tubes, bars and shapes. Apply by recirculating on the O.D. and by a "one shot application" in the I.D. when used on blocks. Recommended for all operations where a burn off lubricant is required, primarily as an I.D. lubricant.

**TD-3700CK** A medium viscosity, polymer based oil formulated with special additives for good lubricity and burn off during the anneal of nonferrous tubing in straight lengths and coils. The metal surface will have a clean and bright appearance. Used on blocks and draw benches "as supplied" for drawing of copper. Ideal lubricant for spinner drawing applications and for all universal automated, high speed tube drawing equipment.

## PRODUCT DATA

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**TD-7000K** A moderately high viscosity oil formulated with special additives for good lubricity and burn off during the anneal of nonferrous tubing in straight lengths and coils. The annealed metal will be clean and bright. The product, as formulated, has a high viscosity index and will adhere to metal surfaces. Used on blocks and draw benches “as supplied” for drawing of copper, aluminum and brass – tubes, bars and shapes. Apply by recirculating on the O.D. and by a “one shot application” in the I.D. when used on blocks.

**TD-P30N** A clear, very viscous, high film strength organic lubricant to be used where a heavy duty bull block and draw bench lube is required. May be used for I.D. and O.D. applications “as supplied” for clean burning and where a highly adherent and tenacious lube is needed. It is an ideal breakdown lubricant.

## CLEAN BURNING COMPOUNDS

**TD-P9616A** A drawing lubricant with a high viscosity index that burns clean during anneal. Ash free with mid-range ester content. This is a premium low viscosity oil, which will burn off clean during an annealing cycle without the need for prior cleaning. It is an ideal lubricant of choice for I.D. / O.D. applications. Due to its extremely high polar additive content, when annealed, produces a bright, residual free surface that matches or exceeds most International “cleanliness” standards. Used for smooth and “grooved” tubing. This is the ideal lubricant of choice for optimum clean I.D. / O.D. surface quality for fine wall, capillary and “specialty” premium tube applications.

**TD-N200** A blend of high viscosity index oils that are enhanced with metal wetters and special polar esters. It is a medium viscosity, clear versatile lubricant. It is formulated with special polar additives for good lubricity, excellent tool life and burn off during the anneal of copper tubing in straight lengths and coils. Annealed metal will be extremely clean and bright. Ideally suited for A.C.R. tubing. Used on blocks and draw benches “as supplied” for drawing copper, aluminum and brass – tubes, bars and shapes. Apply by recirculating on the O.D. and by a “one shot application” in the I.D. when used on blocks. Recommended for all operations where a complete burn off lubricant is required, primarily as an I.D. lubricant.



**TD-N400** Similar to the **TD-N200** with a modified viscosity to facilitate larger size tubing. It is a polymer based oil formulated with special additives for good lubricity and burn off during the anneal of nonferrous tubing in straight lengths and coils. The metal surface will have a very clean and bright appearance. Used on blocks and draw benches "as supplied" for drawing of copper. Ideal lubricant for spinner drawing applications and for all universal automated tube drawing equipment.

**TD-N600** A moderately viscous oil containing a blend of synthetic and high viscosity index oils. Clean burning and suitable for use on larger size tubing. This oil is formulated with special additives for good wetting, lubricity and burn off during the anneal of nonferrous tubing in straight lengths and coils. The annealed metal will be clean and bright. The product, as formulated, has a high viscosity index and will adhere to metal surfaces. Used on blocks and draw benches "as supplied" for drawing of copper, aluminum and brass – tubes, bars and shapes. Apply by recirculating on the O.D. and by a "one shot application" in the I.D. when used on blocks.

**TD-65LS** A moderately viscous, non-smoking, high ester, clean burning lubricant recommended for use on both copper bearing alloys and aluminum. This is a high purity oil, fortified with polar lubricity agents, which provide the user improved metal wetting characteristics and excellent tool life. The **TD-65LS** may be aqueous cleaned or will burn clean when annealing nonferrous tubing, leaving a bright finish. Used on blocks and draw benches "as supplied" for drawing of copper, aluminum and brass – tubes, bars and shapes. Apply by recirculating on the O.D. and by a "one shot application" in the I.D. when used on blocks. Excellent for all types of tubing and wall thicknesses.

**TD-P90X** A viscous, clean burning oil containing specialty selected metal wetters and viscosity index enhancer. It provides excellent tool life and a quality finish on the metal being drawn. Used on bench and block drawing, "as supplied" for both I.D. and O.D applications.

**TD-N1100WX** A blend of synthetic and high viscosity index oils to produce a moderately viscous, clean burning lubricant. Use "as supplied", applying by swab or pump on the I.D. and O.D. of tubing. One application of **TD-N1100WX** will provide ample lubrication for three passes through a die eliminating the need for additional lubricant after the first draw. Used for bench and block drawing of tubing.

**PRODUCT DATA**



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**PRODUCT APPLICATION**

<b>Product Name</b>	<b>Viscosity @ 100°F (SUS)</b>	<b>Specific Gravity</b>	<b>R134a Approved</b>	<b>Polar Additives</b>	<b>Spinner</b>	<b>Bench</b>	<b>Bull Block</b>
TD-KC2	200	0.88	X	X	X	X	
TD-KC3	800	0.86	X	X	X	X	
TD-P92	1,000	0.90	X	X	X	X	X
TD-P9616A	1,500	0.87		X	X	X	X
TD-N200	2,500	0.89		X	X	X	
TD-3700CK	3,700	0.90	X	X	X	X	X
TD-N400	4,250	0.90		X	X	X	X
TD-N600	6,500	0.90		X	X	X	X
TD-7000K	7,000	0.88	X		X	X	X
TD-65LS	7,000	0.87		X	X	X	X
TD-P90X	8,500	0.90		X	X	X	X
TD-N1100WX	11,500	0.89		X		X	X
TD-P30N	100,000+	0.90	X			X	X

Our lubricants are manufactured with the highest quality components. For NSF approval, each facility is encouraged to submit our Material Safety Data Sheets (MSDS) to NSF International for specific product certification for their files.

Product modifications are available upon request. These include added emulsifiers and adjustments to the ester content and formulating to specific viscosities.