

**TRANZ LUBRICANTS is a Division of
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TRANZ Q21-1 to Q21-7

Kinetic Energy Control Fluids

PERFORMANCE AREA

Fluid Damping - Low to Medium Shear requirements in Industrial & Precision applications, such as in instrument assemblies, gyro compasses, gimbals, Viscoelastic Media - for vehicle fluid drives & clutches, etc. [* For High Shear applications - Viscostatic & Liquid Spring Suspensions, see Q20 Series]

The range of TRANZ Q Series Energy Transfer Control compounds covers a wide range of fluid, semi-fluid and compound forms developed to enable the engineering influence of Light, Electrical, Thermal, Acoustic and Kinetic (Mechanical) energy, within the capacity of the film dimensions.

These widely differing products include the TRANZ Q21 Subseries Damping Fluids. These fluids are purpose-driven synthetic organo-metallic fluid polymers developed with a wide range of molecular weights yet retaining the enhancement of very narrow structural (i.e. in the linear molecular structure) configuration which supports their outstanding capacity in fluid damping. By their specific design these liquid polymers can store diverse impact or supercritical shearing energy inputs by smoothly accepting winding and then compression of the extremely long polymer chain length and by winding through the helical conformation of their molecules.

Smooth assumption and storage of differing forms of input energy input is accompanied by little energy loss - some modest heat only - enabling an equally smooth energy release, over time, eventually, or when the power input is interrupted or terminated. The characteristics of this energy absorption and release are such that the cycle is perceived at the very least, as a damping effect and at best, complete force suppression through elimination of peaks.

The inherent characteristics of the TRANZ Q21 Series, Damping and Viscoelastic fluids, include a high dielectric strength, predictable compressibility, a very low rate of thermal expansion and low vapour pressure. These enable secure fluid containment in suitably designed, closed, but not pressure sealed, reservoir systems of appropriate strength and temperature tolerance, but avoiding any metals of construction which are polymer-catalytic in metallic form, especially such as pure copper, tin or zinc. The heat-life of the TRANZ Q21 series in closed systems that have been purged of air and placed under nitrogen blanket is more than 200 % of systems open to the air.

The inherent compressibility means that power is absorbed when an attempt is made to pump these fluids by means of centrifugal impellers. Slow moving positive displacement pumps give best results.

DEFENCE STANDARD & CERTIFIED GRADES

All the Q21 Series and certain selected grades can meet / or already are, Specified in the Australian Defence Command's DEFSTAN series. These products are required to meet the stringent Compliance Release Specifications established in an historical series of ASTM, MIL, SAE-AMS Qualification documents. When these are required they are separately ordered from our TRANZ DA Series.

KINETIC ENERGY CONTROL FLUIDS								
Mechanical-functional, damping, visco-static and visco-elastic fluids								
Fluid Damping - Low to Medium Shear requirements in Industrial & Precision applications, such as in instrument assemblies, gyro compasses, gimbals, Viscoelastic Media - for vehicle fluid drives & clutches, etc. Working Temperature -40°C to +220 °C [Note: For High Shear applications - Viscostatic & Liquid Spring Suspensions, see TRANZ Q20 Series]								
TRANZ Q21 - Q21-7 ETC Series	Q21-1	Q21-2	Q21-3	Q21-4	Q21-5	Q21-6	Q21-7	Q21-8
Viscosity, cps.	50-90	300-400	1,000	10,000	25,000	40,000	60,000	100,000
Flash Point, °C.	272	325	330	350	365	365	368	370
Therm. Exp 25/100°C	1.04x10 ⁻³	9.55x10 ⁻⁴	←-----9.55x10 ⁻⁴ -----→					
TYPICAL PROPERTIES COMMON TO ALL GRADES								
Appearance	Crystal clear, water white.							
Working Temp Range, °C	-40 to +220							
Viscosity./ Temperature Coefficient	0.62							
Specific Gravity, @ 25 °C	0.96							
Vapour Pressure, @ 200 C, mBar,	1.35 x 10 ⁻²							
Specific Heat, J/gm.K.,	1.46							
Thermal Conductivity, W/m. K.,	0.16							
PACKAGING	500 ml Jars; 5 L. lined, cans; 20 & 60 L. lined, steel containers							