

Lubricant additives

Our aqueous polymers act as release/lubricant additives in metalworking fluids and can replace the oil-based products that have been used for decades. Due to their high melt viscosity and polar structure, these polymers separate the friction partners from each other and shift the metalworking process towards hydrodynamic friction.

PRODUCT	TYPE	MELTING RANGE [°C]	WAX VISCOSITY [mPa·s]	SOLID CONTENT [%]	pH	IONIC CHARACTER
HANSA RELEASE R 8160	PP	150	700 - 1600 (170 °C)	35	6.5	a/n
HANSA RELEASE R 8110	HDPE	130	1500 - 6000 (140 °C)	35	9.0	n
HANSA RELEASE R 8158	HDPE	120	500 - 1000 (140 °C)	35	9.0	n
HANSA RELEASE R 8192	HDPE	135	> 6000 (170 °C)	35	9.5	n
HANSA RELEASE R 8184	EBS	142	< 20 (150 °C)	35	6.5	n
HANSA RELEASE R 8124	EBS	142	< 20 (150 °C)	30	7.5	n
HANSA RELEASE R 8180	Carnauba	84	< 20 (100 °C)	30	4.5	n
HANSA RELEASE R 8198	mod. Ester	65	< 20 (150 °C)	30	7.0	n
HANSA RELEASE R 8100	Compound	143	--	43	6.5	n

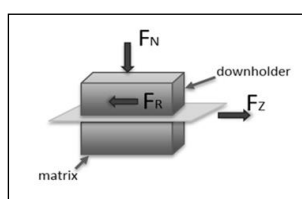
■ Polar additives

■ Highly viscose additives

■ Ready to use lubricant

Polymer additives in the strip drawing test

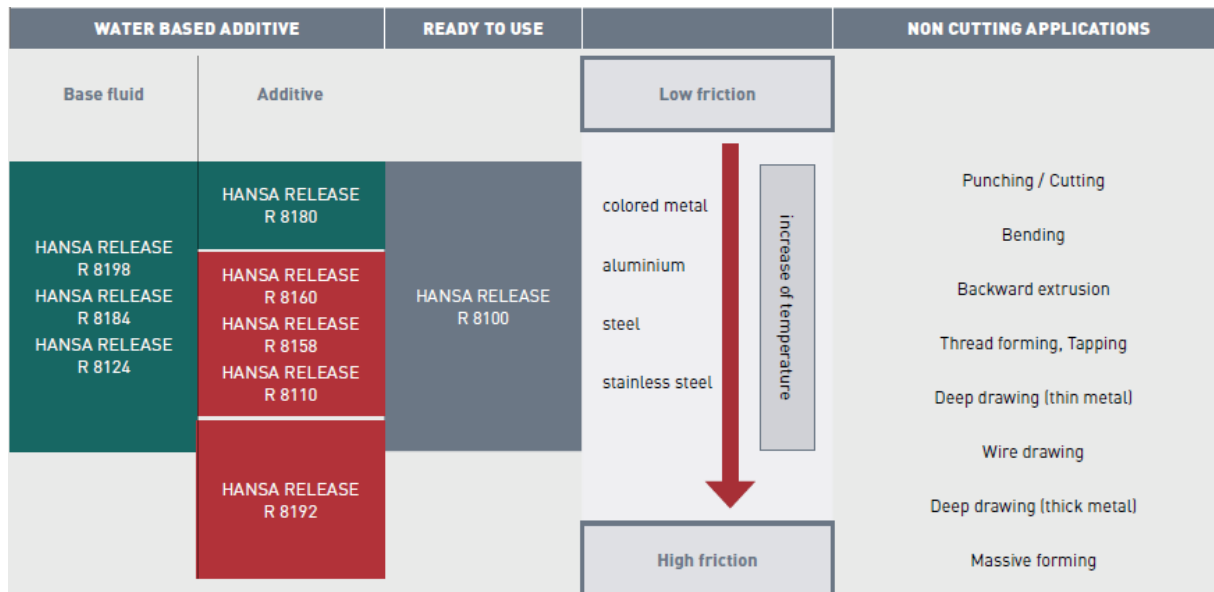
As a simulation of the deep drawing process, the strip drawing test shows how effective polymer additives are, and it shows the difference between polar and highly viscous additives; a deep drawing oil serves as a reference. A metal strip coated with the respective lubricant is drawn through two flat drawing dies at a constant speed. The upper part of the tool simulates the down holder device from the deep-drawing process and presses on the metal strip with a freely selectable force (contact pressure). The coefficient of friction for the respective lubricant can be calculated from the measured tensile force and the contact pressure.



Wax dispersion	Friction coefficient at [2 N/mm ²]	Friction coefficient at [10 N/mm ²]
HANSA RELEASE R 8158	0,2701	0,0840
HANSA RELEASE R 8160	0,2346	0,0838
HANSA RELEASE R 8184	0,1413	0,0652
HANSA RELEASE R 8198	0,1009	0,0353
Reference oil	0,1392	0,1022

Formulation aid for non-cutting metalworking lubricants

Depending on the machining process and the metal to be machined, additives in a metal working fluid must be formulated differently. The following diagram indicates which aqueous polymer additives can best be formulated for different applications.



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