METAL FORMING

FREIBORNE

PROCESS CLEANERS & ETCHANTS

PRODUCT		APPLICATION		SUBSTRATE			CHEMISTRY						CONCENTRATION	TEMPERATURE	METHOD	
PRODUCT NAME	DESCRIPTION	Process Cleaning	Etching	Steel	Aluminum	Stainless	Liquid	Alkaline	Acidic	Sodium	Potassium	Phosphate	Typical Dilution	Operating Temperature	Spray	Immersion
Etchant 4	Alkaline Etchant for Aluminum		X		X		X	X		X			1-5%	140-190°F		X
Etchant 8	Acid Etchant for Aluminum		X	X	X		X		X			X	10-20%	135-165°F		X
Freiclean 4K	Mild Alkaline Degreaser	X		X	X	X	X	X			X	X	1-4%	150-210°F	X	X
Freiclean 10BLF	Heavy Duty Phosphate/Lubricant Remover	X		X		X	X	X			X		5-10%	160-200°F	X	
Freiclean 10SK	Heavy Duty Steel Cleaner	X		X		X	X	X			X		5-10%	150-200°F	X	X
Freiclean 56	Heavy Duty Steel Cleaner	X		X		X	X	X		X	X		5-15%	150-200°F		X
Freiclean 60-I	Acidic Aluminum Cleaner/Brightener	X1	X2	X2	X1		X		X				3-10%	90-180°F		X
Freiclean 61LF	Acidic Aluminum Cleaner/Brightener	X1	X2	X2	X1		X		X				1-10%	90-180°F	X	X

CONVERSION COATINGS

PRODUCT		APPLICATION			SUBSTRATE			CHEMISTRY							CONCENTRATION	TEMPERATURE	METHOD	
PRODUCT NAME	DESCRIPTION	Cold Forming	Drawing	Extruding/ Impacting	Steel	Aluminum	Stainless	Zinc Phosphate	Phosphate Free	Oxalate	Nickel	Fluoride	Tight Grain	Reduced Sludge	Typical Dilution	Operating Temperature	Spray	Immersion
Formcoat 1	Immersion Zinc Phosphate	X	X	X	X			X			X				6-8%	170-195oF		X
Formcoat 2	Immersion Zinc Phosphate	X	X	X	X			X			X			X	?	170-195oF		X
Formcoat 7	Zinc Phosphate for Aluminum	X	X	X		X		X				X			6-8%	125-135oF		X
Formcoat 28	Immersion Zinc Phosphate	X	X	X	X			X			X		X	X	6-8%	170-195oF		X
Formcoat 35	Reduced Sludging Immersion Zinc Phosphate	X	X	X	X			X			X		X	XX	6-8%	170-195oF		X
Formcoat NP63	Phosphate-Free Cold Forming Conversion Coating	X	X	X	X				X				X	XX	5-10%	170-195oF	X	X
Formcoat SS	Stainless Steel Conversion Coating	X	X	X			X		X	X					5-10%	160-170oF		X
Formcoat SSQ	Stainless Steel Conversion Coating	X	X	X			X		X	X					5-10%	160-220oF		X
Precoat 1	Phosphate-Free Conversion Coating for Aluminum	X		X		X			X						0.2-0.4 lb/gal	145-165oF		X

FORMING LUBRICANTS

PRODUCT		APPLICATION				SUBSTRATE			CHEMISTRY										CONCENTRATION	TEMPERATURE	METHOD		
PRODUCT NAME	DESCRIPTION	Cold Forming	Warm Forming	Direct to Metal	Over Conversion Coating	Steel	Aluminum	Galvanized	Liquid	Powder	Water-Based	Polymer	Synthetic	Reactive Soap	Graphite-Free	Drawing Powder	Metallic Stearates	Extreme Pressure	Typical Dilution	Operating Temperature	Spray	Immersion	Draw Box
Formate 173MX2	Aluminum Stearate Drawing Powder	X				X				X					X	X	X	X	Neat	AMB			X
Formate 239	Sodium Stearate Drawing Powder	X				X				X					X	X	X		Neat	AMB			X
Formate 435	Stearates and Polymer Drawing Powder	X				X	X	X		X		X			X	X	X		Neat	AMB			X
Formlube 1	High Strength Reactive Forming Lubricant	X			X	X	X			X	X			X	X				0.25-2.0 lbs/gal	165-190°F		X	X
Formlube 5	High Strength Non-Reactive Forming Lubricant	X			X	X				X									3-25%	160-200°F		X	X
Formlube 7	High Strength Reactive Forming Lubricant	X			X	X	X			X	X			X	X				0.25-2.0 lbs/gal	165-190°F		X	X
Formlube 14B	High Strength Non-Reactive Forming Lubricant	X		X	X	X	X												3-25%	180-200°F		X	X
Formlube 23M	High Strength Reactive Forming Lubricant	X			X		X		X	X	X			X	X				6-16 oz/gal	175-195°F		X	
Formlube 407	Water-Based Polymer Forming Lubricant	X		X		X	X		X		X	X			X				15% v/v	AMB-140°F	X	X	
Formlube 47-16	Water-Based Polymer Forming Lubricant	X			X	X	X		X		X	X			X				3-6% solids	AMB-130°F	X	X	
Formlube HT 402	Synthetic Water Based Die Lubricant		X	X		X			X		X		X		X				1:5 Ratio	700°F Max	X		
Formlube HT 552	Polymer Based Die Lubricant		X	X		X			X		X	X			X				Neat-5:1			X	
Formlube HT 553	Polymer Based Die Lubricant		X	X		X					X	X			X				Neat-5:1		X		