

Key Performance Advantages

- Extends the life of metalworking fluids
- Improves pH stability
- Biodegradable in the environment



Metalworking Fluids

CORRGUARD[®] EXT MULTIFUNCTIONAL NEUTRALIZER FOR LONG-LIFE METALWORKING FLUIDS

Whatever your metalworking fluid challenges, ANGUS has the formulation expertise, product and technology solutions to facilitate a winning formulation. Our breakthrough innovation, CORRGUARD[®] EXT Multifunctional Neutralizer, enables longer-lasting metalworking fluids with improved pH stability and multi-metal compatibility.

Important Advantages

- Helps increase metalworking fluid life when used in conjunction with registered biocides
- Facilitates formulation of aluminum compatible fluids at higher pH
- Low foam generation
- Excellent pH stability
- Resists extraction into tramp oil
- Excellent ferrous metal corrosion control
- Compliant with TRGS 611 in Germany (contains less than 2% secondary amine)
- Listed on most major chemical inventories and REACH compliant¹
- Readily biodegradable in the environment

Recommended Use Levels

1,500 to 3,000 ppm at dilution.

Note: In systems where acid-functional ingredients are present, it will be more cost effective to add the desired level of CORRGUARD EXT and use CORRGUARD[®]-95 Amino Alcohol to neutralize the remaining acids and adjust pH.

Typical Properties

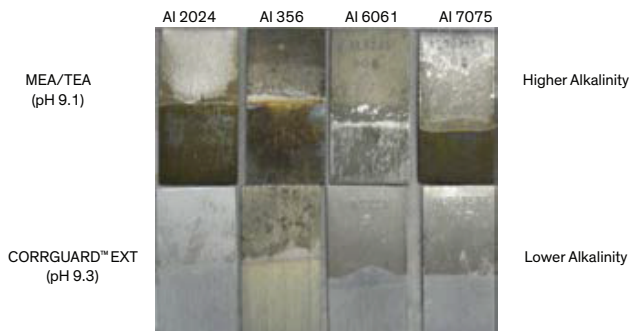
The following are typical properties of CORRGUARD EXT. They are not to be considered product specifications. CORRGUARD EXT is not a biocide and is not intended for use as an antimicrobial.

Characteristic	Details	Typical Value
Actives	Product as supplied	85%
Equivalent weight	Primary active	145
Amine Value (mg KOH/g)		335
pKa	Primary active	9.8
pH	0.5% aqueous	11.1
Specific gravity @ 25°C		0.918
Solubility @ 25°C	Active ingredient in water	<4.3%
	Water in active	<35%
	Active in light naphthenic oil	>20%
Viscosity @ 25°C	Brookfield Viscometer	38 centipoises
@ 0° C		399 centipoises
Freezing point		-3°C (27°F)
Flash point	Setaflash closed cup	132°C (270°F)
Vapor pressure @ 25°C	Active ingredient	0.04 mmHg
Boiling point @760 mmHg	Active ingredient	218°C (424°F)

Long Life Multi-Metal and Aluminum-Friendly Fluids

Metalworking fluid life can be related to pH, with higher pH often giving better resistance to microbial degradation. Aluminum staining, however, is more likely to occur when the total metalworking fluid's alkalinity is high. CORRGUARD EXT facilitates formulation of lower alkalinity fluids, which are less aggressive

on aluminum alloys, even at higher pH (see photo). Less reserve alkalinity (TEA, etc.) is needed, due to excellent microbial resistance in combination with registered biocides. Better microbial resistance contributes to better pH stability.



Aluminum Staining: Impact of Total Alkalinity

Ingredient	MEA/TEA	CORRGUARD EXT (reduced TEA)
Dicarboxylic Acid	3%	3%
Inversely Soluble Ester	8	8
Phosphate Ester	1	1
CORRGUARD EXT	–	4
TEA-99	15	4
MEA	5	5
Triazine	2	2
Deionized Water	66	73
Total	100%	100%

Synthetic Metalworking Fluid Formulations

Amine	Neutralization Efficiency	Iron/Steel Inhibition	Aluminum Compatibility	Foaming Resistance	Performance with Biocides	Resistance to Tramp Oil	Evaporation Resistance	Co Leaching Resistance	Resists NH ₃ Formation
CORRGUARD EXT	–	+	+	+	+	+	+	–	
CORRGUARD -95	+	+/-	+	+	+/-		+	+	+
MEA	+	+/-	–	+	–		+	–	–
MIPA	+	+/-		+	+/-		+	–	+
DGA	+	+/-	+	+	–		+	+	
SYNERGEX™	–	+/-		+/-	+				
TEA	–	+/-	–	+	–		+	–	–
SYNERGEX™ T	–	+		+/-	+/-				
DCHA	–	+			+	–	–	–	
GENAMIN™-CH020	–	+/-		–	+/-	–		+	

* Favorable (+); Unfavorable (-); Variable (+/-); Not Tested (blank)

Product Stewardship

ANGUS encourages its customers to review their applications of ANGUS products from the standpoint of human health and environmental quality. To help ensure that ANGUS products are not used in ways for which they are not intended, ANGUS personnel will assist customers in dealing with environmental and product safety considerations.

For assistance, product Safety Data Sheets, or other information, please contact your ANGUS representative at the numbers provided in this document. When considering the use of any ANGUS product in a particular application, review the latest Safety Data Sheet to ensure that the intended use is within the scope of approved uses and can be accomplished safely. Before handling any of the products, obtain available product safety information including the Safety Data Sheet(s) and take the necessary steps to ensure safety of use.

¹EINECS/REACH in Europe, TSCA in the United States, DSL in Canada, IECSC in China, KECI in Korea, METI in Japan, TCSCA in Taiwan

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