



Exceptional stability in metalworking fluids

Synergex™/MIPA combinations offer enhanced stability, greatly extended fluid life.

Unlike most metalworking fluid additives, Synergex™ amine additives are shown to enhance performance while extending the life of metalworking fluids.

Combined with MIPA (monoisopropanolamine), Synergex amines provide greatly extended fluid life, maintaining higher fluid pH.

Combinations of tertiary AAA (alkyl alkanolamines) and primary amines provide greater stability than a single amine on its own.

To demonstrate, four MIPA/AAA combinations were tested then compared to MIPA/TEA99 (triethanolamine 99) and MIPA/DCHA.

Table 1 contains the test formula.

Table 1	
Coolant formula	%
100-second naphthenic oil	55.00
Soap sulfonate emulsifier	15.00
Alkanolamide emulsifier	15.00
Tall oil fatty acid	2.00
10 HLB nonionic surfactant	3.00
MIPA	5.00
AAA	5.00
Total	100.00

By diluting the fluids to 6%, both the MIPA and AAA are used at 3000 ppm for an amine total of 6000 ppm. Triethanolamine 99 was compared to Amietol™ M12, and DCHA was compared to Synergex, Synergex LA, and Synergex T.

Synergex/MIPA was the best. TEA/MIPA was the worst by far, as Graph 1 shows.

Measuring biological activity using the HMB IV Bacteria Tester from Biotech International, all microbial populations are reported as CFU/mL regardless of whether they are bacteria or mold. Graph 2 shows that despite lower pH readings, Synergex T & Synergex LA ran much lower CFU counts than DCHA.

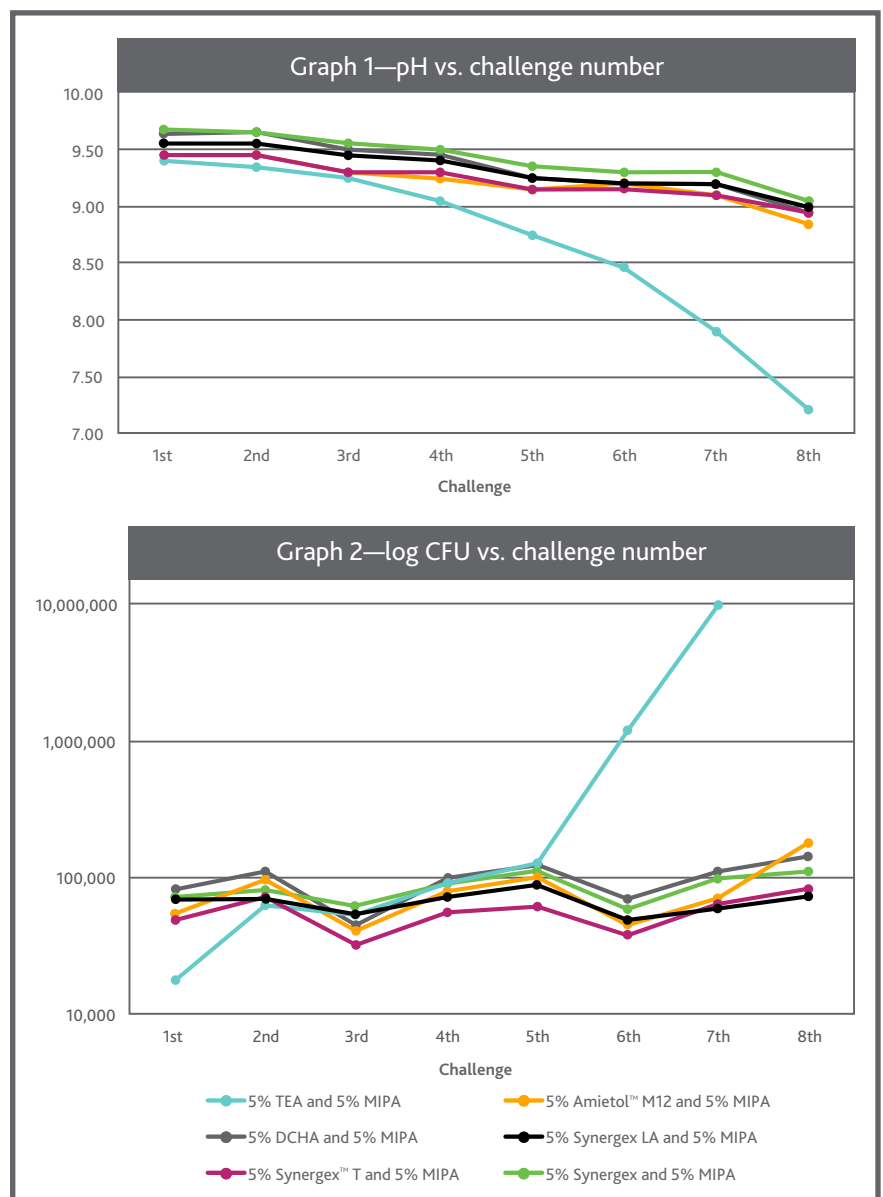




Image 1

Image 1 shows results of cast iron chip tests on fluids halfway through testing (4th challenge). Fluids across the top row are at 6% concentration. Fluids in the middle row are at 4%. Fluids across the bottom row are at 2%. This is where most of the rust appears on those fluids with triethanolamine 99 and DCHA.

These tests clearly demonstrate the usefulness of Synergex™ amine additives and Amietol™ M12.

Contact one of our regional distributors for additional information. U.S. customers on the West Coast, Oklahoma, and Texas contact TCR Industries at tcrindustries.com. Other U.S. customers contact TH Hilson at thhilson.com. Customers in Canada contact Brenntag Specialties at brenntag.ca.

To learn more about Synergex, visit www.SynergexAmine.com

Synergex additives make the most of your metalworking fluids.

Synergex amines and Amietol M12 offer true staying power—providing higher reserve alkalinity to neutralize acids formed during the metal-cutting operation, an important property of any metalworking fluid.

Synergex, Synergex T, Synergex LA, and Amietol M12 are less susceptible to degradation by microbial activity, whereas triethanolamine 99 is very susceptible to attack.

Synergex amines and Amietol M12 provide greater protection and less rust in test after test, while triethanolamine 99 and DCHA reveal increased incidence of rust and corrosion.

For more information or to place an order, contact one of our distributors:

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EASTMAN

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