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## Evaluation of Cortec Additives for Utilization with HOCUT 795-B Machining Fluid

**Background:** Mark Andy, Inc., is the world's number one manufacturer of narrow web printing equipment. The company has a rich history of delivering solutions to increase productivity and profitability for the label and packaging markets. The equipment they manufacture is the best in the industry and thus needs to be corrosion free. Mark Andy Inc. is interesting in increasing the amount of corrosion protection provided by their machining fluid.

**Purpose:** Determine which Cortec additives are compatible with the machining fluid utilized at Mark Andy Inc. and determine if they improve corrosion protection.

**Materials:** HOCUT 795-B  
M-238  
M-435  
Ecoline Cutting Fluid  
1010 Cold Rolled Carbon Steel Panels

**Method:** Standardized Compatibility Test  
ASTM-D-1748

**Procedure:** *Standardized Compatibility Test*

- 1) The solutions (with percent by weight) listed below were created for compatibility testing.

Sample	HoCut 795-B	M-238	M-435	Water
A43	100			
B43	70	30		
C43	70		30	
D43	5			95
E43	5	2		93
F43	5		2	93

- 2) The samples were placed in an 80°C oven.
- 3) After 16 hours the samples were removed and inspected.
- 4) Next the solutions were placed in a 0°C refrigerator.
- 5) After 8 hours the samples were removed and inspected.
- 6) This is considered one test cycle and the samples were subjected to three test cycles.

- a. Elevated temperatures and additive concentrations that will never occur in use are utilized during testing to ensure the solutions are compatible.

*ASTM-D-1748 Humidity Cabinet*

- 1) 1010 carbon steel panels were coated with solutions (with percent by weight) listed below.

Panel	HoCut 795-B	M-238	M-435	Water
D43	5			95
E43	5	2		93
F43	5		2	93
G43	Control			

- 2) After being allowed to fully dry, the panels were suspended in the ASTM-D-1748 Humidity cabinet and were periodically inspected.  
 3) After 560 hours the panels were removed from the ASTM-D-1748 Humidity cabinet, inspected, photographed, and a report was written.

**Results:**

*Standardized Compatibility Test*

Sample	0 hours	8	24	32	48	56	72
A43	FC	FC	FC	FC	FC	FC	FC
B43	Not Compatible						
C43	FC	FC	FC	FC	FC	FC	FC
D43	FC	FC	FC	FC	FC	FC	FC
E43	Not Compatible						
F43	FC	FC	FC	FC	FC	FC	FC

FC = Fully Compatible

*ASTM-D-1748 Humidity Cabinet*

Panel	Time to Failure (hours)
D43	78
E43	DNF
F43	DNF
G43	33

**Conclusion:** M-435 was fully compatible with the Hocut 795-B and increased the length of corrosion protection more than 6 times compared to the HOCUT 795-B alone.



