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## *Evaluation of Clear Film Used by NTN Bearings*

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**Project #:** 17-143-1125

**Results reported by:**

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Brian Benduha  
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**Approved by:**

*Eric Uutala*

Eric Uutala  
Technical Service Manager



**Background:** A sample of clear unidentified film has been submitted for corrosion testing. This film is used in a vacuum pack machine to pack bearings prior to shipment. Although the film is unidentified, it is has been described as Daubert film.

**Samples Received:** Clear film, ~1.5-2.0 mil, received on 8/2/17 in good condition

**Method:** VIA Test, CC-027  
Razor Blade Test, CC-004\*  
\*The test(s) marked are not covered under Cortec Laboratories, Inc. ISO 17025 Scope of Accreditation

**Materials:** VIA test kit  
Razor blade test kit  
Glycerol (lot #Q10A018)  
Methanol, ACS grade (lot #032916C)  
Oven set for 40°C (oven #10)  
Nitrite/Nitrate Test Strips (lot #HC553793)  
Plain polyethylene film (control film)

**Procedure:** The testing was conducted according to standard procedures for each test.

**Results:**

**Razor Blade Test- Carbon Steel Panels**

Sample	Panel #1	Panel #2	Panel #3	End Result
Submitted clear film	Fail	Fail	Fail	Fail
Control	Fail	-	-	Fail

**Razor Blade Test- Copper Panels**

Sample	Panel #1	Panel #2	Panel #3	End Result
Submitted clear film	Fail	Fail	Fail	Fail
Control	Fail	-	-	Fail

**VIA Test**

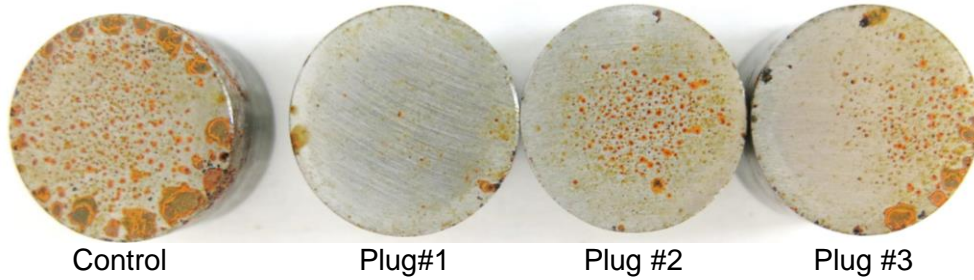
Sample	Plug #1	Plug #2	Plug #3	End Result
Submitted clear film	Grade 1	Grade 1	Grade 1	Fail
Control	Fail	-	-	Fail

**Nitrite/Nitrate Test Strips**


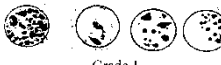
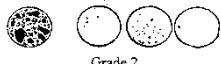

Sample	Results
Submitted clear film	Does not contain any nitrite or nitrate

**Photos from VIA Testing:**

Submitted Clear Film



VIA Test Grades (Grade 2 or 3 are passing)  
 All three plugs must be grade 2 or better to pass the test

Grade 0:	Blind test No corrosion inhibiting effect	
Grade 1:	Blind test Minute corrosion inhibiting effect	
Grade 2:	Blind test Medium corrosion inhibiting effect	
Grade 3:	Blind test Good corrosion inhibiting effect	

**Interpretations:** The clear film sent by NTN Bearings does not provide adequate contact or vapor phase corrosion protection for steel, nor does it provide contact protection for copper. Given these results, corrosion during shipment applications is likely.