

Croda Industrial Specialities  
Home Care

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Crodacor™ BE  
Corrosion inhibitor

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CRODA

# Introduction

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- Water soluble corrosion inhibitor
  - Tin plated steel
  - Cast iron
  - Steel
  - Other ferrous metals
- Non-foaming
- Highly effective even at low addition levels
- Ideal for water based formulations in tin plated steel aerosol cans
- Avoid potential costly recalls



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# Performance test 1

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- Lined (double epoxy phenolic coating) and unlined tin plated aerosol cans
- Cut in half and filled with test solutions:
  - DI water
  - DI water + 0.5% Crodacor BE
  - DI water + 250ppm NaCl
  - DI water + 250ppm NaCl + 0.5% Crodacor BE
- Cans covered and left for 36 days at ambient temperature
- Cans inspected visually



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# Test 1 results – unlined aerosol cans

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DI water



DI water  
+0.5% Crodacor BE



DI water + 250ppm NaCl



DI water + 250ppm NaCl  
+0.5% Crodacor BE

- Without Crodacor BE – significant corrosion evident
- With Crodacor BE – corrosion almost completely eliminated

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# Test 1 results – lined aerosol cans

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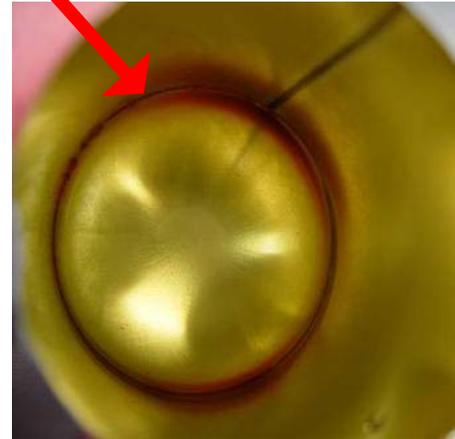
Corrosion evident at can seams



DI water



DI water  
+0.5% Crodacor BE



DI water + 250ppm NaCl



DI water + 250ppm NaCl  
+0.5% Crodacor BE

- Despite protective lining, cans without Crodacor BE show signs of corrosion
- With Crodacor BE – significant reduction in corrosion
- Most evident at the can seams

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## Performance test 2

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- Cold rolled steel coupons
- Submerged in test liquids:
  - DI water
  - DI water + 0.5% Crodacor BE
  - DI water + 250ppm NaCl
  - DI water + 250ppm NaCl + 0.5% Crodacor BE
- Coupons left for 36 days at ambient temperature
- Coupons then removed and inspected visually

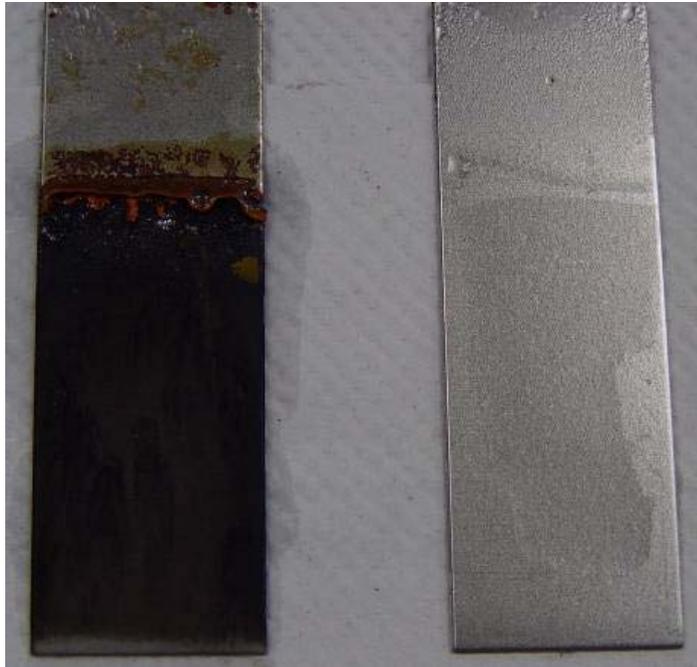


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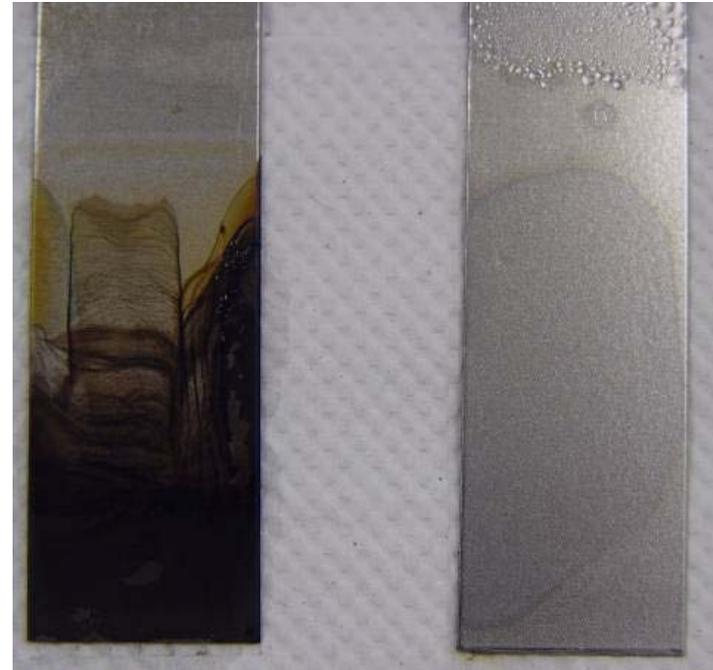
# Test 2 results

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DI water

DI water  
+0.5% Crodacor BE



DI water  
+ 250ppm NaCl

DI water + 250ppm NaCl  
+0.5% Crodacor BE

- Without Crodacor BE – significant corrosion evident
- With Crodacor BE – corrosion almost completely eliminated

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# Performance Test 3

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- Strips of tin plated steel aerosol cans were cut and submerged in test solutions, which included:
  - DI water
  - DI water with 250 ppm NaCl
  - DI water with 0.5% Crodacor BE
  - DI water with 250 ppm NaCl and 0.5% Crodacor BE
  - DI water with 0.5% Competitive Corrosion Inhibitor
  - DI water with 250 ppm NaCl and 0.5% Competitive Corrosion Inhibitor
- Competitive Corrosion Inhibitor
  - Sodium Nitrite
- The strips stayed submerged for 30 days at ambient conditions

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# Test 3 Results

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- Crodacor BE can be used as an alternative to sodium nitrite
  - Sodium nitrite has toxicological concerns due to possible formation of nitrosamines
  - Some companies will not use sodium nitrite anymore



DI water

250 ppm NaCl

DI water + 0.5%  
**CRODACOR BE**

250 ppm NaCl + 0.5%  
**CRODACOR BE**

DI water + 0.5%  
Sodium Nitrite

250 ppm NaCl + 0.5%  
Sodium Nitrite

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# Applications

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- Low VOC formulations
- Aqueous based formulations
- Metal working fluids
- Disinfectant
  - Approved as an inert ingredient for non-food pesticide products

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# Summary

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- Highly effective water soluble in can corrosion inhibitor
- Reduces corrosion even in lined cans
- Allows use of steel rather than aluminium cans
- Reduce problem corrosion and can failures
- Avoid potential recall issues



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