Technical Process Bulletin

BONDERITE S-FN 860 ACHESON FUNCTIONAL PREVENTIVE COATING

(KNOWN AS COPPERSHIELD 860)

Issued 7/18/2013

1. Introduction:

BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) is a solution of benzotriazole, an anti-staining agent for copper and copper alloys. After application, a micro-molecular film forms on the metal surface, leaving an invisible protective coating that keeps the surface bright.

BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) is manufactured under controlled conditions that insure chemical and physical uniformity and improved product performance.

2. Operating Summary:

BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) may be added directly to:

- Emulsions
- Hot rinse waters
- Most emulsifiable cutting and rolling oils
- Wire and tube drawing solutions
- Annealing and quench waters

If objectionable water spots occur on the final products, evaluate incorporating one of the following options into the BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) anti staining process:

- Use a hot water rinse (180 - 190°F) after applying the BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860).
- Use forced hot air on the parts after applying BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860).
- Add equal parts of a non-ionic surfactant to the BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) bath.
- Henkel Surface Technologies Technical Service Representative can assist in recommending a suitable product.

Properties:	
Density:	1.14 g/l
Appearance:	Clear, light brown liquid
Active Ingredients:	40%
Chemical:	Bath Preparation per 1000 Gallons:
BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860)	0.5 to 1.5 gallons (500 - 1500 ppm of Concentrate) (2 to 5.6 liters)

Operation and Control:	
Temperature:	Ambient to 190°F
Concentration of Active Ingredient:	200 to 600 ppm
pH:	5 - 8

3. The Process:

Copper and copper alloys can be protected by either using BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) in water solutions or by adding it directly to metal working lubricant solutions.

4. Materials:

BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860)
Testing reagents and equipment

5. Testing and Control:

BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) concentrate is generally used in rinse applications from 500 - 1000 ppm. In emulsions, BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) concentrate is used between 1000 - 1500 ppm. Testing for the active ingredient can be easily performed using the standard test methods developed by the HACH® Company. Their address and phone number are below.

HACH Company
P.O. Box 389
Loveland, Colorado
80539-0389

Phone:800 227 4224
FAX: 970 669 2932

The HACH test kits analyze for the active ingredient which will be between 200 to 600 ppm based on the above makeup additions.

pH:
The pH of the working solution should be maintained between 5 - 8.drop. The anti-staining properties of the solution can be restored by adjusting the pH with small quantities of soda ash.

If the pH of the working solution drops below 7.0 and a greenish-brown flocculent forms, the solution has been contaminated with copper salts. This is a result of poor rinsing. The anti-staining properties of the solution cannot be restored, and a new solution must be made up.

6. Storage Requirements:

Store BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) at room temperature. **Do Not Freeze.** If the product freezes, warm to 75°F and mix thoroughly to redissolve the solids before using. BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860) should be clear without solids present.

7. Waste Disposal Information:

Applicable regulation covering disposal and discharge of chemicals should be consulted and followed.

Disposal information for the chemicals, in the form as supplied, is given on the Material Safety Data Sheet for each product.

8. Precautionary Information:

When handling the chemical in the form as supplied, the precautionary, first aid and handling recommendations on the Material Safety Data Sheet for each product should be read, understood and followed.

Testing Reagents and Apparatus
(Order only those items which are not already on hand)

Code	Quantity	Item
**	1 ea	pH Meter
**	1 liter	Buffer Solution, pH 7
**	1 liter	Buffer Solution, pH 10

** Can be purchased from a local chemical supply house such as VWR or Fisher Scientific.

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(KNOWN AS COPPERSHIELD 860)

Company _____ Technical Process Bulletin No. 238133
Plant _____ Unit _____
Henkel Surface Technologies Representative _____
Telephone _____ Sales Office Telephone _____

Tank No. _____.
Working Volume _____ gallons.
_____ gallons per inch.

Makeup
(Section 2) _____ pounds _____ ounces of BONDERITE S-FN 860 ACHESON (known as COPPERSHIELD 860)

Operation Time: _____ minutes _____ seconds.

(Section 2) Temperature: _____ ° to _____ ° Fahrenheit.

Testing and
Control

(Section 5) Concentration: Test every Day.

Range: _____ to _____.

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