BONDERITE

Technical Data Sheet

BONDERITE C-AD 1560

Known as Ridosol 1560
April 2016

PRODUCT DESCRIPTION

BONDERITE C-AD 1560 provides the following product characteristics:

Technology	Industrial Cleaner
Product Type	Cleaning Booster
Application	Metal Pre-Treatment

BONDERITE C-AD 1560 is a liquid cleaning booster based on nonionic surfactants.

Application Areas

BONDERITE C-AD 1560 is used in spray- and spray/immersion processes.
It must be combined with a suitable cleaner.
The demulsifying behaviour is a combination of the washed-off oils/fats and the surfactants. Oils have to be tested for demulsifying behaviour.
Drag-in of anionic or nonionic emulsifiers or/and soaps can disturb the demulsifying behaviour of BONDERITE C-AD 1560 strongly. The limit for anionics/soaps is approximately 150mg/L (in sum, state of knowledge of today). For determination of concentration please use Epton-titration.
If drag-in of anionics/soaps disturbs demulsifying a cationic surfactant has to be used to neutralize the anionic emulsifier resp. to destroy the soap. For that reason Bonderite C-AD 0680-2 has to be used. To destroy for example 150 mg/L anionics/soaps an amount of approximately 170 mg/L cationic is needed (this is equivalent to 340g Bonderite C-AD 0680-2 per m³ bath). Please take care if dosing Bonderite C-AD 0680-2 that no over-dosing of cationics happens. Even small amounts of cationic surfactants are able to disturb zinc phosphating process. We recommend to add Bonderite C-AD 0680-2 firstly in the first degreasing stage and only if necessary to add it in the following stage.
Bonderite C-AD 0680-2 contains approx. 5 % chloride.

TECHNICAL DATA

Density	~1.0 g/cm³

DIRECTIONS FOR USE

Preliminary Statement:
Prior to use it is necessary to read the **Material Safety Data Sheet** for information about precautionary measures and safety recommendations. Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed. Please also refer to the local safety instructions and contact Henkel for analytical support.

Bath make-up:
Fill the tank with warm water, start pumping and add for a volume of 1,000 L:

BONDERITE C-AD 1560	1.0 to 3.0 kg

Operating Data:
Adjusting the following parameters could be necessary depending on the line conditions.

Points	see TDS of BONDERITE C-AK products
Temperature	50 to 60°C
Duration of treatment	depends on requirements

Bath Control:
Two-phase titration of cationic and anionic surfactants (by Epton):

1. Purpose and scope

The method describes the determination of cationic and anionic surfactants in aqueous solutions.

2. Principle

The anionic dye disulphineblue forms a pair of ions with the cationic surfactant as well as the cationic dye dimidiumbromide does with an anionic surfactant which, being present in excess, will color a chloroform-phase either red or blue. The point of equivalence is indicated showing a grey combination color.

3. Chemicals

chloroform
5 N sulfuric acid
0.005 M hyamine-solution
0.005 M dodecylsulphate-solution

Mixed indicator solution

a) Stock-solution

- put each into a 50 mL beaker: 0.5 g dimidiumbromide and 0.25 g disulphineblue. Pour over both with 25 ml ethanol-water-mixture (10 parts ethanol + 100 parts water)
- stir until dissolved
- transfer both solutions into a 250 mL graduated cylinder with the solvent mixture, rinse beakers and fill cylinder up to the mark, mix well and keep it at ambient temperatures in the dark

b) Mixed indicator solution

Henkel

- put into a 500 mL graduated beaker: 200 mL water, 20 ml stock-solution and 20 ml 5 N sulfuric acid.
- fill up to the mark with water
- mix well and protect the solution from direct exposure to sunlight
- the solution is useable for approximately 6 months

4. Equipment

- Pipettes
- 100 ml mixing graduated cylinder with ground glass stopper

5. Procedure

- pipette 5mL of the sample into the cylinder, add 20 mL chloroform, 10ml combination-indicator solution and 40 ml deionized water
- then set to acidic by adding a few drops of 5 N sulfuric acid (check with pH-paper), close cylinder with a glass stopper and shake powerfull
- the presence of anionic surfactants is indicated by a red color in the chloroform-phase following the phase separation, cationic surfactants color the phase blue
- anionic surfactants: in the titration with 0.005 M hyamin-solution the chloroform-phase changes its colour from red to blue
- as soon as chloroform phase turns blue, a surplus of cationic surfactant is present, this means, it`s the end of the titration
- cationic surfactants: in the titration with 0.005 M dodecylsulphate-solution the chloroform phase changes its colour from blue to red

6. Calculation of anionics / cationics

Consumption hyamine-solution x 1.75 x 200
(with 5mL sample)
= **anionic surfactant (mg/L)** calculated as TPS

Consumption dodecylsulphate-solution x 1.81 x 200
(with 5mL sample)
= **cationic surfactant(mg/L)** calculated as benzalkon A

7. Determination of soaps

You set the solution basic by adding a few drops of sodium hydroxide solution 0.5 N (pH = 12). The
mixed indicator solution must be basic also. Before addition in the titration vessel you mix 10 mL of
mixed indicator solution with 10 mL of 0,5 N sodiumhydroxid solution in a beaker.
Soaps and other anionic surfactants are titrated step by step with Hyamine-solution until the color changes
from red to blue.
At presence of anionics, these must be detected in acid pH-milieu with mixed indicator and subtracted
from the calculation for soap.

8. Calculation of soaps

Consumption hyamine-solution minus consumption of hyamin-solution measured in acid pH-range
x 1.41 x 200 (with 5mL sample)
= **soap (mg/L)** calculated as oleic acid

<u>Titration of nonionic surfactants (solvent-free):</u>

1. Purpose and scope

This method serves the summary acquisition of nonionic surfactants in product applications, e.g. degreasing bathes and wash solutions

The working range goes from 0.1 to 10.0 g/L

2. Chemicals

deionized water
test solution 1 (indicator)
test solution 2 (activator)
test solution 3 (volumetric solution)
(Advise: should be stored in a cool, dark place)

3. Equipment

- Volumetric pipette, 1 mL (alternative 0.5 respectively 2 mL, see the 'Remarks' below)
- Glass beaker tall form, 50 mL
- Glass burette, 10 mL or digital burette
- Magnetic stirrer
- Stirring bar
- Measuring flask, 1 litre

4. Procedure

- cool down the sample to room temperature and homogenize it by vigorously shaking
- pipette 1mL of the sample into a 50mL beaker
- dilute to 25mL with DI water
- add 5mL test solution 2 (activator)
- afterwards stir with the magnetic stirrer (approx. 650 Rpm)
- add 15 drops test solution 1 (indicator)
- in the presence of nonionic surfactants the solution is coloured red
- titrate with test solution 3 (volumetric solution) in steps of approx. 0.1mL until the complete disappearance of the red shade. (Background: white paper; Line of sight: horizontal)
- close to the endpoint wait 2 to 3 sec after each addition step to complete colour developing
- calculate the product concentration from the consumption of test solution 3 (volumetric solution)

5. Calculation

The result is always indicated related to BONDERITE C-AD 1560. The necessary conversion factor must be determined before. For this purpose titrate a freshly prepared standard solution with 1 g/L (or the appropriate set point concentration of the process specification) BONDERITE C-AD 1560 in DI-water as described above. The unknown concentration in the sample results then as follows:

Product concentration sample in g/L =
(consumption sample in mL x concentration standard solution in g/L) : (consumption standard solution in mL)

6. Remarks

The consumption of solution 3 per determination should ideally be 1-8 mL. If it is smaller or larger the used sample volume must be increased or decreased accordingly.
After a longer storage time (>3 months) or thermal effect (>30 °C) the active substance content in the test solution 3 (Volumetric solution) can decrease. Therefore the conversion factor (see above) should be determined again in

certain distances. This applies also, if a new charge of the test solution 3 is used.

Replenishing:
For each missing point for a volume of 1,000 L add:

BONDERITE C-AD 1560	0.1 to 0.3 kg

Classification:
Please refer to the corresponding **Material Safety Data Sheets** for details on:
Hazards identification
Transport information
Regulatory information

Storage

Recommended Storage Temperature	5 to 40°C
Shelf-life, months	18
Frost-Sensitive	yes

ADDITIONAL INFORMATION

Disclaimer

Note:
The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.
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