Technical Data Sheet

BONDERITE® C-AK 4181 L AERO

October 2025

PRODUCT DESCRIPTION

BONDERITE® C-AK 4181 L AERO provides the following product characteristics:

Technology	Metal pre-treatment
Product type	Alkaline cleaner
Application	Immersion process

BONDERITE® C-AK 4181 L AERO is a liquid, strongly alkaline immersion cleaner to rapidly and economically remove strong rust and other corrosion deposits, heat deposits, color as well as grease and dirt deposits in a single work step.
With this product, a liquid alternative to the proven powder product BONDERITE® C-AK 4181 AERO is available now.
Storage and handling are considerably simplified within the meaning of occupational health and safety.

BONDERITE® C-AK 4181 L AERO can be used in a normal immersion bath, electrolytic and ultrasonic process. It leaves a perfect surface. Steel components do not discolor. The base metal is not attacked. Components made from copper, brass and their alloys are slightly etched. All surfaces are left with a clean and shiny appearance. BONDERITE® C-AK 4181 L AERO prevents quick rusting after treatment. Hydrogen embrittlement does no occur when applied to iron or steel.

TECHNICAL DATA

Composition	Sodium hydroxide, caustic alkalis, salts, organic acids, surfactants
Appearance	Slightly turbid liquid with light sediment at room temperature
Density (20°C), g/mL	1.3
Flash point	Not applicable
pH	>13

Specifications
This material has been tested to the following specifications. Please contact Henkel for details.

AMS-1379
CCT-APPROVED (Dec 1993)
CCT-LB540
CFM-CP 2054
CFM-CP 2562
CFM-Temp 970318
CMM 189120
DMR-70-256
GE-C04-009 (70-80-30)
GE-C04-182
IAE-01-417
PW-SPMC 116 (SPOP 18, 203, 211, 212, 213, 216, 221,222, 258)
PW-SPMC 129
RR-OMAT 1/173N
RR-OMAT 173C
ASTM F-945

DIRECTIONS FOR USE

Preliminary statement

Prior to use it is necessary to read the **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.

Application

BONDERITE® C-AK 4181 L AERO is suited for being used on cast steel, steel, iron, stainless steel, titanium, cadmium, magnesium and copper with its alloys.
Surfaces of copper, brass and similar alloys are slightly etched.

BONDERITE® C-AK 4181 L AERO removes rust and corrosion deposits, hand perspiration, oil carbon build-up,light heat deposits, cooling lubricants, etc.

BONDERITE® C-AK 4181 L AERO is suited, without limitation, for use in the following industries: automotive and aircraft industries, oil refineries, railway and transport companies, maritime and river navigation, metal processing industry, for mould cleaning in the glass, rubber and plastics industry.

Process

BONDERITE® C-AK 4181 L AERO is used in the immersion process diluted up to about 10% in water. The undiluted base corresponds to a 36.5% aqueous solution of the respective powder product BONDERITE® C-AK ARR-4181 AERO. Water to the bath may under no circumstances be added to the hot bath when this is idle. Otherwise, layers may be formed in the bath and the bath contents may suddenly spurt out when such layers mix.
Water must always be added slowly to the well moving bath, preferably to the cold bath. Circulation of the bath liquid or the use of ultrasound increases the efficiency and reduces the immersion time. However, bath-air movement should be avoided to prevent carbon oxide being absorbed from the air.

BONDERITE® C-AK 4181 L AERO is used in the concentrations listed below:

	Steel	Copper and brass	Magnesium	Titanium
Concentration	~750g	~450g	~90g	~180g/L water
Temperature, °C	80 to 90	80 to 90	80 to 90	70 to 80
Immersion time,min.	15 to 120	10 to 20	10 to 20	10 to 20

Rinsing	with cold or warm water, preferably under pressure
Passivation	BONDERITE® S-PR R-BLOL

Equipment

Mild steel is sufficient as the container material, however, stainless steel is preferred.
Heating coils from corrosion-resistant steel.
For the electrolytic process: Generator or rectifier 6-12 V.

Control

Apparatus

1. 205945 - Pipet, 25 mL
2. 205700 - Buret, 25 mL
3. Volumetric flask, 250 mL
4. 205402 - Beaker, 250 mL
5. pH meter
6. Pipet, 20 mL

Reagents

- 1.0 N sulfuric acid

Procedure

1. Obtain a sample from the tank and allow to cool to room temperature.
2. Pipet 25 mL of the sample into a 250 mL volumetric flask and dilute to the mark.
3. Mix well and pipet 20 mL of the diluted sample into a 250 mL beaker. Add 100 mL DI water.
4. Titrate to pH 11.4 with 1.0 N sulfuric acid.

Calculation

- mL of 1.0 N sulfuric acid x 6.88 = % by volume BONDERITE® C-AK 4181 L AERO

Classification

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

Storage

Recommended storage temperature, °C	5 to 50

Disclaimer

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. Any liability in respect of the information in the Technical data sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:
In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:
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. 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. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, or Henkel Canada Corporation, the following disclaimer is applicable:
The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage
Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 2

This document was created and digitally signed by tdx.henkel.com at 2026-06-12T09:24:12.374Z