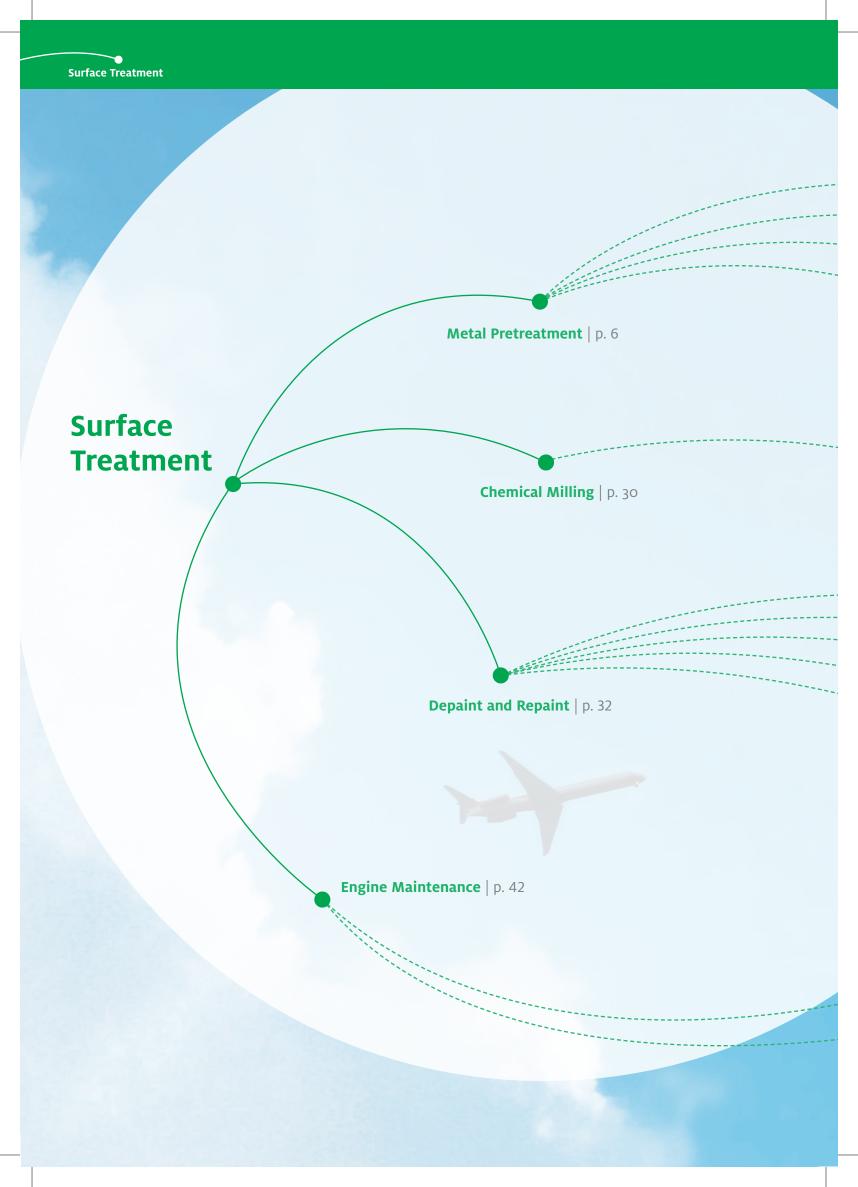
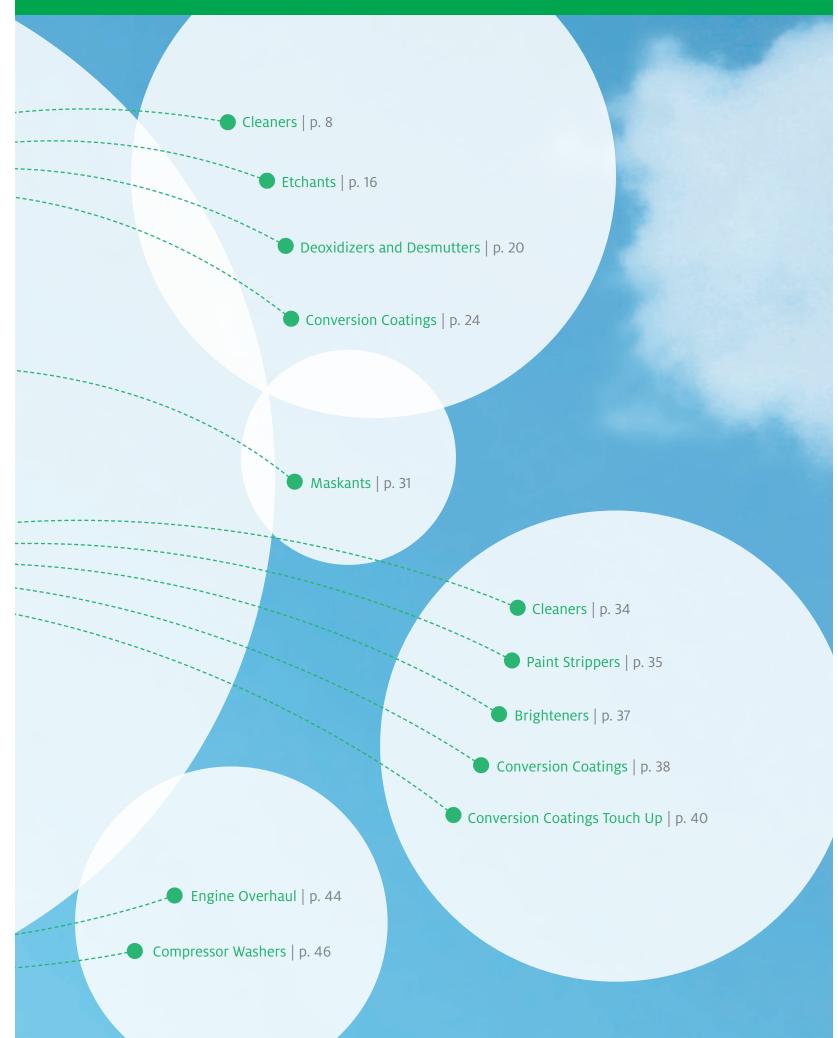


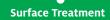
Surface Treatment Aerospace Product Selector Guide





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Surface Treatment

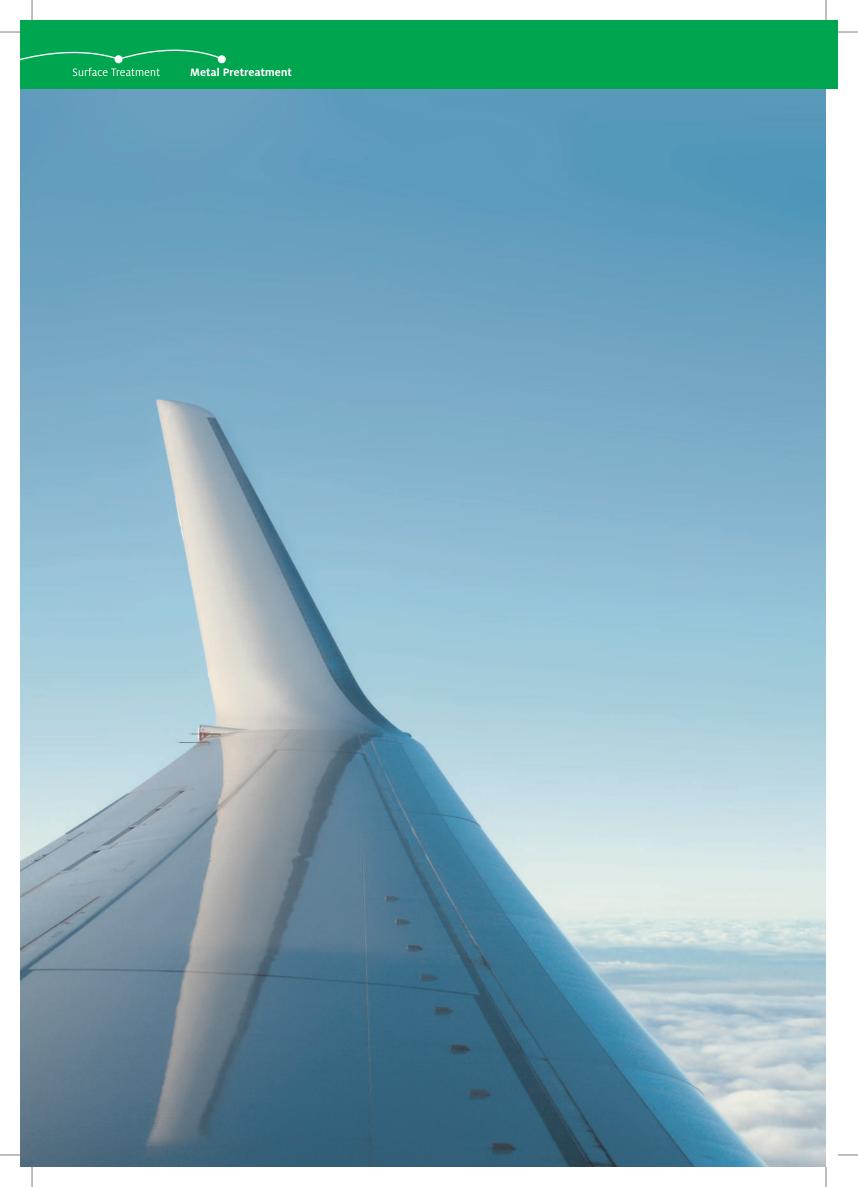
BONDERITE – delivering value and total surface treatment solutions for all your aircraft and engine requirements

Choose from our broad surface treatment portfolio

Aircraft structures, parts and engines require highquality surface treatment solutions to ensure a safe and reliable fleet for airline operators. Henkel, as a proven surface treatment solutions supplier, provides a broad portfolio of products throughout the aerospace supply chain. It includes cleaners, paint strippers, conversion coatings and engine overhaul products. As a leader in sustainability best practices, Henkel offers environmentally advantaged product options for the aerospace industry's leading platforms.

Benefit from our industry proven expertise

BONDERITE products come along with Henkel's many years of proven aerospace industry experience and know-how. Take advantage and benefit from Henkel's leading products and expertise for your aerospace-grade surface treatment needs.



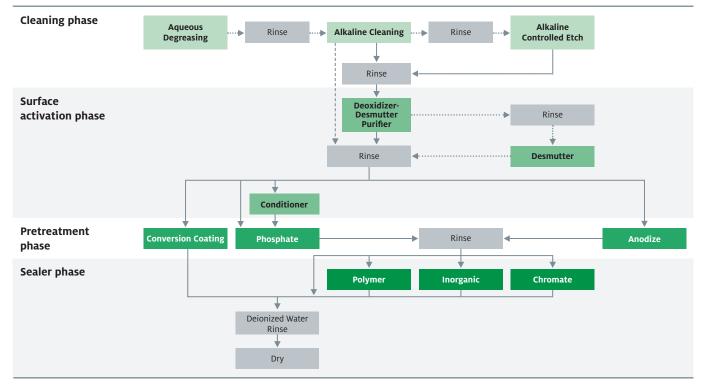
Covering the entire metal pretreatment process: BONDERITE metal pretreatment solutions

Metal Pretreatment: Essential for the longevity of your airframe and aerospace parts

Before bonding, sealing or painting, aircraft parts require a consistent metal pretreated surface that fulfills all of your process requirements. This includes all stages of metal pretreatment from cleaning and degreasing to conversion coating.

From cleaners to conversion coatings: BONDERITE covers it all

With more than seven decades of metal pretreatment experience, Henkel's BONDERITE solutions cover all steps of the surface treatment process: Cleaners and alkaline etchants for the cleaning phase, deoxidizers and desmutting products for the activation phase and conversion coatings for the surface treatment phase. On the following pages, we will introduce you step-by-step to Henkel's aerospace-grade product offerings.



Metal surface treatment typical process

In a class of its own:

BONDERITE cleaning products

for all your aircraft and component cleaning requirements

No aircraft preparation without cleaning ...

A clean surface is essential for all aircraft applications, as it improves the corrosion performance and optimizes contact bonding and sealing of parts. Henkel's broad portfolio of leading BONDERITE cleaning products provides value and dependability for all our customers' needs.

Based on our long history in supplying the aerospace industry, Henkel provides proven solutions for all your cleaning requirements, accompanied by world-class technical expertise and numerous training modules.

... and no cleaning without BONDERITE.

Henkel's BONDERITE range meets many leading OEM process requirements, with aqueous and solvent-based cleaners to remove dirt, grime or impurities from a surface and to deliver optimal performance every time. With BONDERITE, you will always find the appropriate solution to remove surface contaminants like dirt and grease.

Why choose BONDERITE cleaners?

- > Easy to maintain bath solutions
- > Aerospace grade solutions with OEM qualifications
- Complete surface treatment product portfolio
- > Long bath life

BONDERITE cleaning products: Facts at a glance

Key factors to consider when choosing the right BONDERITE cleaner

- > All products must meet OEM process specification requirements, as metal parts and gasket seals can be attacked and destroyed by cleaning chemicals
- > Optimal cleaning solution for your process requirements
- > Ensure a clean and "water-break"-free surface
- > Soil types (Organic or Inorganic)
 - » Rust preventives
 - » Lubricants
 - » Oils
 - » Polishing or buffing compounds
 - » Inks
 - » Oxides
 - » Dirt, grease and grime

Cleaners classification

Alkaline Etch (pH > 12)

- Slight to heavy attack of aluminum or metal removal
- Cleaning is enhanced through the evolution of hydrogen gas
- > Provides change to the metal appearance

Acid (pH < 7)

- > Acids chemically break down soils
- > Bath can produce surface attack
- Surface attack is controlled by product concentration, temperature and contact time

Alkaline Non-Etch Cleaner (pH > 10)

> Inhibited solutions

Neutral, Low Alkaline Non-Etch Cleaner (pH 7 – 10)

- > Non-inhibited alkaline solutions
- No adverse effects if allowed to dry on aluminum

Solvent

- Safe to use on a wide array of metals
- Good vapor degreaser
- Ideal wiping cleaner
- May attack painted or plastic surfaces

Metal Pretreatment: Cleaners

)	1	1	
Applications	Immersion for Parts	•	•	•	•	
	Spray / Brush		•			
	Spray Recirculate					
	Wipe					
Substrate	Aluminum	•	•	•	•	
	Magnesium			•	•	
	Magnesium – Die Cast			•		
	Mild Steel					
	Stainless Steel		•	•	•	
	Titanium	•	•	•	•	
	Ferrous		•	•	•	
	Nonferrous					
Product	Consistency	Liquid	Powder	Liquid	Liquid	
Characteristics	Form	Concentrated	Concentrated	Concentrated	Concentrated	
	Chemistry	Alkaline, Water-Based	Alkaline, Water-Based	Alkaline, Water-Based	Alkaline, Water-Based	
Drocoss	Time (Minutes)	3 – 15 Minutes	3 – 15 Minutes	3 – 15 Minutes	Varies as Needed	
Process (Immersion)	Time (minutes)	5 - 15 Minutes	5 - 15 Minutes	5 - 15 Minutes	Valles as Needed	
	Temperature °F / °C	130 – 180°F 54 – 82°C	120 – 140°F 49 – 60°C	110 – 160°F 43 – 71°C	131 – 158°F 55 – 70°C	
	Mix Ratio (Product : Water)	4 y – 10% v / v	5 – 8 oz. / gal.	5 – 25% v / v	10 – 20% v / v	
Process	Time (Minutes)	-	1 – 3 Minutes	-	-	
(Spray)	Temperature °F / °C	-	120 – 140°F 49 – 60°C	_	-	
	Mix Ratio (Product : Water)	-	1 – 4 oz. / gal.	-	-	
Products	New Product Name	BONDERITE C-AK 298™ AERO	BONDERITE C-AK 4215™ NC-LT AERO	BONDERITE C-AK 4355™ AERO	BONDERITE C-AK 6849™ AERO	
	Known as	Ridoline [®] 298™	Turco [®] 4215 [™] NC-LT	Turco® Ridoline® 4355™	Turco® 6849™	
Regional	Asia Pacific	-	Drum, Pail	_	Drum	
Availability & Packaging	Europe / Middle East / Africa	-	Pail	_	Drum, Pail	
	Latin America	Drum	Drum, Pail	Drum	Drum	
	North America	Bottle, Drum, Pail, Tote	Bottle, Drum, Pail	Bottle, Bulk, Drum	Bottle, Bulk, Drum, Tote	
Description		BONDERITE C-AK 298 [™] AERO is a liquid, non-silicated, immersion cleaner for aluminum and its alloys. It is formulated for use in anodizing and conversion coating lines. It is free rinsing and will remove a variety of soils including oils, greases, inks and wax-based markings.	BONDERITE C-AK 4215 TM NC-LT AERO is a white granular mix developed for cleaning ferrous and nonferrous alloys by spray, immersion and ultrasonic methods at low temperatures. It is ideal for cleaning fuel and hydraulic components, and for cleaning metals prior to metal bonding.	BONDERITE C-AK 4355 TM AERO is a phosphate-free liquid, immersion-applied, non-etching, cleaning product designed specifically to replace halogenated hydrocarbon vapor degreasers for cleaning aluminum alloys. It is formulated for removal of various soils such as oils, greases, inks and wax-based markings. Its superior cleaning characteristics compared to vapor degreasing provide some amount of interstage	BONDERITE C-AK 6849 [™] AERO is a clear aqueous alkaline degreaser formulated to remove shop soils, marking inks, Cosmoline brand rust preventive, grease and lube oils from ferrous and nonferrous alloys. It offers both exceptional effectiveness and tank life. It replaces solvent-type vapor degreasing fluids with an effective aqueous cleaner. The costs and hazards normally associated with chlorinated solvent cleaning are thereby	

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						•
Powder	Liquid	Powder	Liquid	Powder	Lic	Juid
Concentrated	Concentrated	Concentrated	Concentrated	Concentrated		ntrated
Alkaline, Water-Based	Alkaline, Water-Based	Alkaline, Water-Based	Alkaline, Water-Based	Alkaline	Ac	idic
3 – 15 Minutes	3 – 10 Minutes	Varies as Needed	3 – 15 Minutes	15 – 30 Minutes	3 – 10	Minutes
130 – 180°F 54 – 82°C	120 – 130°F 49 – 54°C	180°F (min.) 82°C (min.)	100 – 140°F 38 – 60°C	General: 185 – 205°F 90 – 95°C Titanium: 168°F (max.) 75°C (max.)	Ambient	140°F (max.) 60°C (max.)
5 – 12 oz. / gal.	5 – 8% v / v	5 – 12 oz. / gal.	5% – 25% v / v	75 – 100% by volume	25 – 50% by volume	5 – 10% by volume
-	_	-	1 – 3 Minutes	-		_
-	-	-	120 – 140°F 49 – 60°C	-		-
-	-	-	3% – 10% v / v	-		-
BONDERITE C-AK 909™ AERO	BONDERITE C-AK ALTREX® 24 [™] AERO	BONDERITE C-AK C NVT AERO	BONDERITE C-AK LS NP-LT AERO	BONDERITE C-AK 4181™ AERO		DERITE 9™ AERO
Novaclean 909™	Turco [®] Altrex [®] 24 [™]	Turco [®] C NVT	Turco® Liquid Sprayeze NP-LT	Turco [®] 4181™	Turco®	4409™
Drum	Pail	-	Pail	Drum, Pail	Drun	n, Pail
Pail	-	-	Drum, Pail	Pail	Drum, F	Pail, Tote
Drum	Drum	Drum	-	-	Dr	um
Drum	Drum, Pail, Tote	Can, Drum	Drum, Pail	-	Drun	n, Pail

BONDERITE	BONDERITE	BONDERITE	BONDERITE	BONDERITE	BONDERITE
C-AK 909™ AERO	C-AK ALTREX [®] 24 [™] AERO	C-AK C NVT AERO	C-AK LS NP-LT AERO	C-AK 4181 [™] AERO	C-IC 4409™ AERO
is a medium-duty,	is an inhibited, non-etching,	is a heavy-duty, alkaline	is a straw-colored liquid	is a flowing, granular-free	is a clear, colorless liquid
caustic-free immersion	concentrated liquid alkaline	cleaner for immersion and	developed to remove shop	product formulated to	acid cleaner and deoxidizer
cleaner that provides	cleaner for cleaning	barrel cleaning operations.	soil, lube oils, light drawing	simultaneously strip paint,	designed for use on
excellent wetting, emulsi-	aluminum and its alloys.	It is particularly suited to	oils and drawing waxes	dissolve rust, and light	ferrous and nonferrous
fying and dispersing prop-	The product is an effective	plating, porcelain enam-	from ferrous, aluminum,	heat from jet engine parts.	alloys by immersion, spray,
erties which are effective	remover of most soils	eling and other critical	copper and titanium	It is used during routine	and hand wipe methods. It
in the removal of a wide	found on aluminum	finishing operations which	alloys. In addition, it is also	maintenance. It removes	is not intended for use on
variety of soils on ferrous	and other metals. It can	require the utmost in	suitable for cleaning most	carbonatious deposits,	magnesium alloys and high
and nonferrous metals. In	be used in a variety of	cleanliness. In addition, it	magnesium alloys, zinc	phosphate coatings and	strength steels.
addition, it is safe on steel,	cleaning operations.	has tremendous soil toler-	and cadmium. The product	Semetal W as well as	
aluminum, brass and zinc		ance, and cleans and rinses	is ideal for precleaning	light oils and unwanted	
die castings.		well even under the heavy	metals prior to phosphating	lubricant residues.	
		soil loads of barrel washing	and painting.		
		of screw and header			
		machine products.			

Metal Pretreatment: Cleaners

Applications	Immersion for Parts	•	•	•	•	
	Spray / Brush	•		•	•	
	Spray Recirculate					
	Wipe					
Substrate		•	•	•	•	
	Magnesium	•		•		
	Magnesium – Die Cast					
	Mild Steel				•	
	Stainless Steel	•	•	•	•	
		•	•	•	•	
	Ferrous	•	•	•		
	Nonferrous	•	•	•		
Product	Consistency	Liquid	Liquid	Liquid	Powder	
Characteristics		Concentrated	Concentrated	Concentrated	Concentrated	
	Chemistry	Alkaline, Water-Based	Alkaline, Water-Based	Alkaline, Water-Based	Alkaline, Water-Based	
Process (Immersion)	Time (Minutes)	5 – 15 Minutes	_	5 – 15 Minutes	3 – 15 Minutes	
	Temperature °F / °C	130 – 170°F 65 – 80°C	-	130 – 170°F 65 – 80°C	120 – 140°F 49 – 60°C	
	Mix Ratio (Product : Water)	3 – 20% by value	-	3 – 20% by value	5 – 8 oz. / gal.	
Process	Time (Minutes)	Varies as Needed	5 – 15 Minutes	Varies as Needed	1 – 3 Minutes	
(Spray)	Temperature °F / °C	Ambient	Ambient	Ambient	120 – 140°F 49 – 60°C	
	Mix Ratio (Product : Water)	1 part concentrate to 9 – 30 parts water	Use as received	3% – 30% in water	1 – 4 oz. / gal.	
Products	New Product Name	BONDERITE C-AK 5948DPM™ AERO	BONDERITE C-AK 5948DPM™ THK AERO	BONDERITE C-AK 5948R™ AERO	BONDERITE C-AK 4215NC™ AERO	
	Known as	Turco [®] 5948-DPM™	Turco [®] 5948-DPM [™] Thick	Turco [®] 5948-R™	TURCO 4215 [™] NC	
Regional	Asia Pacific	Drum, Pail	Pail	Drum, Pail	-	
Availability & Packaging	Europe / Middle East / Africa	Drum, Pail, Tot	Pail	Drum, Pail	Pail	
	Latin America	Drum, Tot	Drum	Drum, Pail	-	
	North America	Bottle, Drum, Pail	Bottle, Drum, Pail	Bottle, Bulk, Drum, Pail	Drum, Pail	
Description		BONDERITE C-AK 5948DPM™ AERO is an alkaline, water-based, blue concentrated compound formulated to effectively clean painted and unpainted aircraft ex- terior and interior surfaces when diluted with water. It is ideally suited for use on all models of jet aircraft and is also designed to be used in immersion tanks for dip applications.	BONDERITE C-AK 5948DPM TM THK AERO is an environmentally advantaged thixotropic, water-based, heavy-duty aircraft cleaner. It is formulated to effectively cling to painted and unpainted aircraft exterior and interior surfaces. It is ideally suited for use on all jets, especially in baggage bins, flap and wheel well areas, and on engines before overhaul. It can be applied as spray or mop.	BONDERITE C-AK 5948R TM AERO is an alkaline, water-based, blue, concentrated compound formulated to effectively clean painted and unpainted aircraft exterior and interior surfaces when diluted with water. It is ideally suited for use on all aircraft large or small parts, and for cleaning engine parts during engine overhaul. It is also designed to be used in immersion tanks for dip applications.	BONDERITE C-AK 4215NC TM AERO is a granular mixture developed to clean aerospace metals, including the ones that come in contact with LOX. It is ideal for cleaning fuel, hydraulic components and articles that require adhesive bonding, anodizing and conversion coatings.	

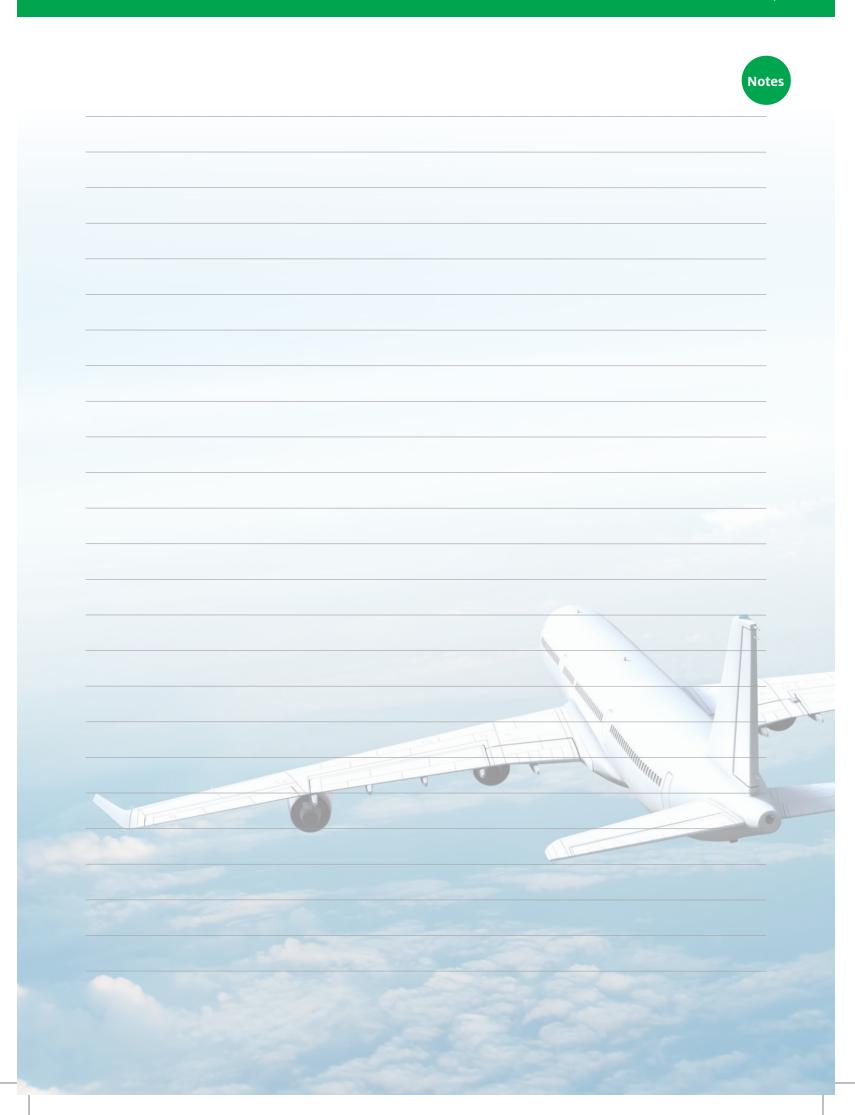
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	•	•
	•	
		•
		-
		•
		•
•		•
•		•
Liquid	Liquid	Liquid
Ready-to-Use	Concentrated	Concentrated
Solvent	Alkaline, Water-Based	Alkaline, Water-Based
Until wax is completely		
softened & dissolved	_	-
50 – 68°F 10 – 20°C	-	-
Used as Received	-	-
_	Varies as Needed	Varies as Needed
_	Ambient	Ambient
-	10 – 20%	1 part concentrate to 3 – 15 parts water
BONDERITE C-MC 6802™ AERO	BONDERITE C-AK 6871™ AERO	BONDERITE C-AK AIR TEC 23™ AERO
Turco [®] 6802™	Turco [®] 6871™	Turco [®] Air-Tec #23™
Drum	_	Drum, Pail
Pail, Tot	-	Drum, Pail
Drum	-	Drum
Drum	Drum, Pail	Bottle, Bulk, Drum, Pail
BONDERITE C-MC 6802 TM AERO is a clear, amber liquid developed to remove platter's wax and similar low melting stop-off compounds by immersion in the heated product. It is free of chlorinated hydrocarbons, phenols, and chromate. It can be used on all metals.	BONDERITE C-AK 6871 TM AERO is a clear, straw-colored alkaline concentrate designed to be diluted with water to clean painted and unpainted exterior aircraft surfaces by spraying or foaming methods.	BONDERITE C-AK AIR TEC 23 TM AERO is a clear, straw-colored, alkaline concentrate designed to be diluted with water to clean painted and unpainted exterior aircraft surfaces by spraying or foaming methods. It meets requirements of MIL-C- 87936A, Type I.





Metal Pretreatment: Cleaners

Applications	Immersion for Parts			
	Spray / Brush	•	•	
	Spray Recirculate			
	Wipe			•
Substrate	Aluminum	•	•	•
	 Magnesium			
	Magnesium – Die Cast			
	Mild Steel		•	
	Stainless Steel		•	
	Titanium		•	
	Ferrous		٠	
	Nonferrous		•	
Product	Consistency	Liquid	Liquid	Liquid
Characteristics	Form	Concentrated	Concentrated	Ready-to-Use
	Chemistry	Acid, Solvent	Alkaline, Solvent	Alkaline, Emulsion
			Anamic, Solvent	
Process (Immersion)	Time (Minutes)	-	-	-
(minersion)	Temperature °F / °C	-	-	-
	Mix Ratio (Product : Water)	-	_	Use as Received
Process	Time (Minutes)	-	15 Minutes	-
(Spray)	Temperature °F / °C	-	68 – 86°F 20 – 30°C	-
	Mix Ratio (Product : Water)	Full strength or 1:2	20% v / v	-
		BONDERITE		
Products	New Product Name	C-IC METALGLO FF RTU AERO	BONDERITE C-AK 5975A™ AERO	BONDERITE C-MC 1495™ X AERO
	Known as	Turco® Metal Glo FF RTU	Turco [®] 5975-A™	Turco® 1495-X™
Regional	Asia Pacific	_	Pail, Drum	Pail
Availability &	 Europe / Middle East /	_	Pail	Pail
Packaging	Africa			
	Latin America	-	-	Pail
	North America	Drum, Tote	-	-
Description		BONDERITE C-IC METALGLO FF RTU AERO is a nonflammable, non-fluoride, acid-based cleaner, brightener, deoxidizer and prepaint conditioner for aluminum. It contains viscosity builders that allow for added contact time, enabling this product to remove corrosion products from horizontal and vertical surfaces. It produces a chemically clean, water- break-free and streak-free surface. It can be applied as spray or brush.	BONDERITE C-AK 5975A TM AERO is a solvent containing high pressure cleaner and can be used on ferrous and nonferrous alloys. It is suitable as an aircraft exterior cleaner.	BONDERITE C-MC 1495 TM X AERO is a medium-heavy duty aircraft polish and cleaner. It quickly removes oxide films.



For a perfect surface finish: BONDERITE etchants

With etchants, you can achieve an optimum surface appearance

As a specialist, you know that surface preparation is fundamental to paint adhesion, surface bonding and corrosion protection. Therefore, for secondary operations, it is important to prepare metal by cleaning and providing a high-quality, fine satin, etched surface.

With BONDERITE etchants, you can take advantage of optimum process benefits

Besides a high-quality etched surface and lighter weight, BONDERITE etchants make sure that the metal is etched away only in exposed areas. You can dissolve metallic aluminum to gain a smoother, uniform surface appearance while providing an extended bath / tank life for your process.

Why choose BONDERITE Etchants?

- > Good for very sharp and defined surfaces
- > Controlled etch rates
- > Achieve surface smoothness
- > Prevent caustic mist from escaping into the workplace

BONDERITE etchants: Facts at a glance

BONDERITE etchants key features:

- Nonflammable
- > Readily mix with cold water
- › Produce minimal amount of soft, non-caking sludge
- > Operations up to 105°C / 221°F
- > Produce uniform etch on most aluminum alloys
- > Easily controlled by simple titration

Key factors to consider when choosing the right BONDERITE etchant

- > Type of alloy
- > Type of chemical milling maskant
- Required specification

Surface preparation

Cleaning

To ensure a uniform etch in the bath containing alkaline etchant, aluminum work pieces must be thoroughly cleaned using a non-silicated cleaner prior to being placed in the etch bath.

Water Rinsing

After cleaning, the metal must be thoroughly rinsed with water, preferably warm. The rinse should be overflowed continuously at a rate which will keep it clean and free from scum and contamination.

Metal Pretreatment: Etchants

Immersion for Parts					
Etchant	•	•	•	•	
Aluminum	•	•	•	•	
Consistency	Liquid	Liquid	Liquid	Powder	
Form	Concentrated	Concentrated	Concentrated	Concentrated	
Chemistry	Strong Alkaline	Strong Alkaline	Strong Alkaline	Alkaline	
Time (Minutes)	1 – 5 Minutes	10 – 60 Minutes	10 – 60 Minutes	3 – 5 Minutes	
Temperature °F / °C	120 – 180°F 49 – 82°C	167 – 221°F 75 – 105°C	194 – 221°F 90 – 105°C	122 – 158°F 50 – 70°C	
Mix Ratio (Product : Water)	4% – 10% v / v	14, 5% v / v	50% v / v	37.5 to 52.5 g / L of water	
Time (Minutes)	_	_	_	_	
Temperature °F / °C	-	-	-	-	
Mix Ratio (Product : Water)	-	-	-	-	
New Product Name	BONDERITE C-AK EC-202L™ AERO	BONDERITE C-AK ETCH 9HL™ AERO	BONDERITE C-AK ETCH 17L™ AERO	BONDERITE C-AK ALUM ETCH 2 AERO	
Known as	Turco® Nova EC-202L™	Turco® Form Etchant 9 H-L	Turco® Etchant 17L	Turco [®] Aluminetch #2	
Asia Pacific	-	Drum	Drum	-	
Europe / Middle East / Africa	-	Drum	Drum, Tote	Pail	
Latin America	-	-	-	Pail	
North America	Bulk, Drum, Pail, Tote	Drum	Drum	Drum	
	BONDERITE C-AK EC-2021 TM AERO is a liquid alkaline aluminum etch cleaner for immersion applications that will produce a lightly etched finish on aluminum alloys, while simultaneously removing any oils and other soils present on the work surface. It produces a stable foam blanket which effectively entraps the gases evolved during the etching operation. It contains a special blend of detergents and dispersing agents to minimize hard scale formation. Therefore, it makes equipment maintenance a much easier and less costly operation.	BONDERITE C-AK ETCH 9HL [™] AERO is equivalent to a 50 percent water solution of the dry flake BONDERITE C-AK ETCH 9H AERO. It was developed to provide a convenient means to charge and rejuvenate caustic chemical milling baths for aluminum.	BONDERITE C-AK ETCH 17L [™] AERO is a specially compounded caustic etchant for use on the majority of aluminium alloys in the chemical milling process.	BONDERITE C-AK ALUM ETCH 2 AERO is a white granular mixture formulated to clean light soils and etch aluminum by immersion methods. Its solution has a low surface tension which causes a uniform wetting of the metal surface and produces a smooth matte finish on extrusions, structural shapes, aircraft components and similar aluminum parts.	
	Aluminum Consistency Form Chemistry Time (Minutes) Temperature °F / °C Mix Ratio (Product : Water) Time (Minutes) Time (Minutes) Mix Ratio (Product : Water) Mix Ratio (Product : Water) New Product Name Known as Asia Pacific Europe / Middle East / Africa	Spray / BrushImage: Spray RecirculateWipeImage: Spray RecirculateWipeImage: Spray RecirculateWipeImage: Spray RecirculateEtchantImage: Spray RecirculateItenationImage: Spray RecirculateAluminumImage: Spray RecirculateConsistencyLiquidFormConcentratedChemistryImage: Spray RecirculateTime (Minutes)Image: Spray RecirculateNew Product NameSproper RecirculateNew Product NameSproper RecirculateAsia PacificImage: Spray RecirculateI atin AmericaImage: Spray RecirculateNorth AmericaSproper RecirculateSpray RecirculateSproper RecirculateSpray RecirculateSproper RecirculateSproper Middle East / Image: Sproper RecirculateImage: Sproper RecirculateSproper RecirculateSproper RecirculateSproper RecirculateSproper RecirculateSproper RecirculateSproper RecirculateSproper RecirculateSproper RecirculateSproper RecirculateImage: Sproper RecirculateSproper RecirculateImage: Sproper RecirculateSproper RecirculateImage: Sproper RecirculateSproper RecirculateImage: Sproper Recirculate<	Spray / BrushImage: Spray RecirculateImage: Spray RecirculateWipeImage: Spray RecirculateImage: Spray RecirculateWipeImage: Spray RecirculateImage: Spray RecirculateEtchantImage: Spray RecirculateImage: Spray RecirculateAluminumConcentratedConcentratedConsistencyImage: Spray RecirculateImage: Spray RecirculateConsistencyImage: Spray RecirculateImage: Spray RecirculateConsistencyImage: Spray RecirculateStrong AlkalineConsistencyImage: Spray RecirculateImage: Spray RecirculateConsistencyImage: Spray RecirculateImage: Spray RecirculateConsistencyImage: Spray RecirculateImage: Spray RecirculateConsistencyImage: Spray RecirculateImage: Spray	Spray / BrushImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateWipeImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateWipeImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateEtchantImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateEtchantImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateConsistencyImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateConsistencyImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateConsistencyImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateTime (Minutes)Image: Spray RedirculateImage: Spray RedirculateSpray RedirculateNew Product: Water)Image: Spray RedirculateImage: Spray RedirculateSpray RedirculateKas PacificImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateKas PacificImage: Spray RedirculateImage: Spray RedirculateImage: Spray RedirculateKas PacificImage: Spray RedirculateImage: Spray RedirculateImage: Spray Redirculate	Spray / Bruch Syray / Bruch Strong / Bruch International (Strong / Bruch) International (Strong / Bruch) International (Strong / Bruch) Auminum International (Strong / Bruch) International (Strong / Bruch) International (Strong / Bruch) International (Strong / Bruch) Consistency Liquid Liquid Liquid International (Strong / Bruch) Time (Minutes) 1 - 5 Minutes Strong / Bruch) 3 - 5 Minutes 3 - 5 Minutes Time (Minutes) 1 - 5 Minutes 110 - 60 Minutes 10 - 60 Minutes 3 - 5 Minutes Time (Minutes) 1 - 5 Minutes 1167 - 2717 130 - 1307 132 - 1387F Time (Minutes) 1 - 5 Minutes 10 - 60 Minutes 3 - 5 Minutes 3 - 5 Minutes Time (Minutes) 1 - 5 Minutes 10 - 60 Minutes 3 - 5 Minutes 3 - 5 Minutes Time (Minutes) 1 - 7 Minutes 10 - 60 Minutes 3 - 5 Minutes 3 - 5 Minutes Time (Minutes) 1 - 7 Minutes 1 - 7 Minutes 1 - 7 Minutes 1 - 7 M

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Liquid	Liquid
Ready-to-Use	Concentrated
Alkaline	Strong Alkaline
15 – 60 Minutes	15 – 60 Minutes
175 – 204°F	150 – 190°F
80 – 95°C	66 – 88°C
75% - 25% v / v	15% – 100% v / v
_	_
-	-
-	_
BONDERITE C-AK 5578-GL™AERO	BONDERITE C-AK 5578-L™ AERO
Turco [®] 5578-GL	Turco® 5578-L
-	-
Drum	-
-	-
Drum, Tote	Bottle, Bulk
BONDERITE C-AK 5578-GL [™] AERO is a liquid product formulated for alkaline etching on titanium, columbium and tantalum alloys by immersion systems or spray applications. It is an effective etchant prior to adhesive bonding, diffusion bonding, paint- ing, welding and brazing.	BONDERITE C-AK 5578-L [™] AERO is an amber liquid compound formulated to clean and etch titanium, columbium and tantalum alloys by spray or immersion systems. It readily removes mill soils, marking inks, lube oils, cutting oil and fingerprints at a low concentration and will etch titanium at higher concentrations. It is an effective etch prior to adhesive bonding, diffusion bonding, painting, welding and brazing.
	Ready-to-Use Alkaline 115 - 60 Minutes 175 - 204°F 80 - 95°C 75% - 25% v / v - - - - - - - - - - - - - - - Druco® 5578-GL Drum - Drum, Tote BONDERITE C-AK 5578-GL TM AERO is a liquid product formulated for alkaline etching on titanium, columbium and tantalum alloys by immersion systems or spray applications. It is an effective etchant prior to adhesive bonding, diffusion bonding, paint-

If it has to be cleaner than clean: Deoxidize and desmut with BONDERITE

Best preparation for bonding and painting: remove everything

For a professional aircraft preparation, oxide layers and smut have to be removed completely before any bonding or painting applications. Both challenges require specific cleaning solutions that consider the alloy and surface condition, the type of conversion coating being used, the environmental regulations and individual customer requirements.

Best choice: BONDERITE

It offers exactly the solution you need. Regarding oxides, the high-quality BONDERITE deoxidizers remove corrosion products as well as heavy storage oxides or residues. At the same time, its desmutting products completely remove surface deposits. In short: You can depend on Henkel to provide solutions for all your surface treatment needs.

Why choose BONDERITE Deoxidizers and Desmutters?

- Complementary chemical solutions
- Proven performance
- > Chrome-free chemical options
- > Solutions for a wide variety of applications

BONDERITE deoxidizing and desmutting products: Facts at a glance

BONDERITE deoxidizers and desmutters will remove oxides and smut from the substrate

- Corrosion products
- > Heavy storage oxides
- > Residues of abrasive cleaning
- > Remnants of shot peening
- > Traces of foreign metal contamination

Necessity of smut removal

Smut is the combination of intermetallics, metals and metal oxides that remain after cleaning and / or etching.

Smut:

- > Is loosely adherent to the surface
- > Will inhibit proper formation of conversion coating
- > Inhibits paint adhesion
- > Contaminates processing solutions
- Initiates corrosion

Key factors to consider when choosing the right BONDERITE deoxidizer and desmutter

- > Alloy and surface condition
- > Type of conversion coating being used
- > Environmental concerns and regulations
- > Equipment and tank availability
- > OEM process requirements
- > Process water conditions

Available types of deoxidizers and desmutters

Nitric-based	Chrome-based	Iron-based	Non-chrome / non-iron based
 Not suitable for silicon alloys (castings) Fluoride needs to be added to improve efficiency 	 Allows for long transfer times Longer bath life than nitric based 	 Environmentaly responsible Good performance 	 Environmentally responsible Aids in copper passivation Regulatory compliance with REACh
 Eventually leads to staining problems 			

> Can cause fuming

Metal Pretreatment: Deoxidizers and Desmutters

Applications	Chrome	•				
	Iron		•	•	•	
	Non-chrome / Non-Iron					
Substrate	Aluminum	•	•	•	•	
	Titanium					
Product	Consistency	Liquid	Liquid	Liquid	Liquid	
Characteristics	Form	Concentrated, Two Packages	Concentrated, Two Components	Concentrated, Two Components	Concentrated, One Package	
	Chemistry	Chromate	Non-Chrome, Non-Iron	Non-Chrome, Non-Iron	Non-Chrome, Iron-Based	
Process	Time (Minutes)	1 – 15 Minutes	1 – 15 Minutes	1 – 15 Minutes	1 – 15 Minutes	
(Immersion)	Temperature °F / °C	Ambient	Ambient	Ambient	Ambient	
	Mix Ratio (Product : Water)	- 7% v / v D6 M/U, 10% v / v Nitric Acid	10 – 20% v / v D2310, 20 – 30% Nitric Acid	15% v / v Aldox V, 26% Nitric Acid	19% v / v	
Process	Time (Minutes)	-	-	1 – 15 Minutes	15 – 60 Seconds	
(Spray)	Temperature °F / °C	-	_	Ambient	Ambient	
	Mix Ratio (Product : Water)	-	-	15% v / v Aldox V, 26% Nitric Acid	19% v / v	
Products	New Product Name	BONDERITE C-IC DEOXDZR 6MU™ AERO	BONDERITE C-IC 2310™ AERO	BONDERITE C-IC ALDOX® V AERO	BONDERITE C-IC SMUT-GO® NC AERO	
	Known as	Turco® Deoxidizer 6 Makeup	Turco® Deoxalume® 2310™	Turco® Aldox® V	Turco [®] Liquid SMUT-GO [®] NC	
Regional	Asia Pacific	Drum, Pail	-	-	Drum	
Availability & Packaging	Europe / Middle East / Africa	-	Pail	_	Pail, Drum, Tote	
	Latin America	Drum, Pail	Drum	_	Drum	
	North America	Bottle, Bulk, Drum, Tote	Bulk, Drum, Tote	Bottle, Drum, Tote	Bottle, Drum	
Description		BONDERITE C-IC DEOXDZR GMU TM AERO in a solution of nitric acid or sulfuric acid removes oxides and alkali residues of preceding alkaline degreasing or etching processes on aluminium and its alloys. It is used in an immersion process.	BONDERITE C-IC 2310 TM AERO is a chromium-free concentrated acidic liquid product specifically formulated for deoxidizing and desmutting wrought aluminum alloys. It is extremely effective in removing surface oxides, discolorations due to heat treatment or thermal deburring, and smut which develops during alkaline etching and chemical milling. It develops a stain- free surface on aluminum	BONDERITE C-IC ALDOX® V AERO is a chromium-free, brown liquid formulated to deoxidize, desmut, and lightly etch aluminum alloys. It can be applied as spray or immersion methods that require low surface resistance, prior to anodizing, conversion coating, bonding or welding.	BONDERITE C-IC SMUT-GO* NC AERO is a dark brown liquid formulated to deoxidize and desmut aluminum alloys by spray or immersion methods. It is chromate-free and ideal for processing alloys that require low surface resistance, prior to anodizing, conversion coating, bonding or welding. The nominal etch rates for most aluminum alloys will normally be in the range of 0.02 – 0.10	

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Liquid Concentrated,	Liquid
One Package	Concentrated
Non-Chrome, Iron-Based	Strong Acid
1 – 15 Minutes	-
Ambient	Ambient – 140°F Ambient – 60°C
19% v / v	-
15 – 60 Seconds	-
Ambient	-
19m% v / v	-
BONDERITE C-IC SMUT-GO® NCB AERO	BONDERITE C-IC 4104™ AERO
Turco® Liquid SMUT-GO® NCB	Turco® Nitradd (T-4104)
Drum, Pail	Drum, Pail
Drum, Pail Drum, Pail, Tote	Drum, Pail Pail
Drum, Pail, Tote	

The foundation of every successful surface treatment: **BONDERITE conversion coatings**

First step: surface protection

Whenever a high bare corrosion protection is necessary, an anodization is not possible or a repair coating for small areas is required, you will need a reliable surface treatment before bonding and painting: A protective surface layer created by a chemical reaction between the metal and a chemical solution.

First choice: BONDERITE conversion coatings

Once the conversion coating has been applied as fundamental surface layer, there is no chance to replace it – reason enough to choose high-performance coatings only. With BONDERITE, Henkel offers multiple options in conversion and chemical coatings for all your metal pretreatment processes and for more applications than any other chemical provider. This high-end quality is the reason why our different types of proven BONDERITE conversion coatings are listed in many OEM process specifications.

Why choose BONDERITE conversion coatings?

- > Stabilize metal surface
- > Protect metal surface from corrosion
- > Inhibit corrosion spread
- > Improve paint adhesion and adhesive bonding



BONDERITE conversion coatings: Facts at a glance

Where BONDERITE conversion coatings are used

- > For the corrosion protection of aluminum surfaces
- For metal pretreatment before bonding and painting
- For high bare corrosion protection

- > Substituting anodization by inappropriate shape of substrates
- As repair coating for small areas
- > For critical military applications according to MIL-DTL-81706B

BONDERITE conversion coatings capabilities

- > Stabilize metal surfaces before and after painting
- Inhibit corrosion spread
- Optimize paint adhesion

Available chemistries:

- > Hexavalent chrome (Cr6+)
- > Trivalent chrome (Cr³⁺)

- Improve adhesives bonding
- Maintain electrical resistance
- > May insulate one metal from another
- Non-chrome
- > Adhesion promoters

Qualified Products List for MIL-DTL-81706B*

		cı	ass			Mater	ial Form				Applicati	on Method	
TYPE 1 Composition with Cr ⁶⁺	Known as	1A	3	1 Form I Concen- trated Liquid	2 Form II Powder	3 Form III Premix Liquid	4 Form III Premix Liquid	5 Form V Premea- sured Powder	6 Form VI Premixed Liquid	A Spray	B Brush	C Immer- sion	D Appli- cator
BONDERITE M-CR 1001 [™] AERO	Alodine [®] 1001™		•	•						•		•	
BONDERITE M-CR 1132™ AERO	Alodine [®] 1132 [™] Touch-N-Prep [®] Pen	•	•						•				•
BONDERITE M-CR 1200™	Alodine [®] 1200™	•			•					•	•	•	
BONDERITE M-CR 1200 [™]	Alodine [®] 1200™		•		•							•	
BONDERITE M-CR 1200S [™] AERO	Alodine [®] 1200S [™]	•			•					•	•	•	
BONDERITE M-CR 1200S™ AERO	Alodine [®] 1200S™		•		•							•	
BONDERITE M-CR 1201 [™] AERO	Alodine® 1201™ (Brush On)	•				•					•		
BONDERITE M-CR 1500 [™] AERO	Alodine [®] 1500 [™]		•	•						•		•	
BONDERITE M-CR 1600 [™] AERO	Alodine [®] 1600™	•	•	•								•	
BONDERITE M-CR 600™ AERO	Alodine [®] 600™	•	•		•					•	•	•	
BONDERITE M-CR 600™ RTU AERO	Alodine [®] 600 [™] RTU	•	•			•				•	•	•	
BONDERITE M-CR ACCELAGOLD AERO	Turco® Liquid Accelagold	•				•					•		
		ci	ass			Materi	ial Form				Applicatio	on Method	
TYPE 2 Composition with Cr ¹³	Known as	1A	3	1 Form I Concen- trated Liquid	2 Form II Powder	3 Form III Premix Liquid	4 Form III Premix Liquid	5 Form V Premea- sured Powder	6 Form VI Premixed Liquid	A Spray	B Brush	C Immer- sion	D Appli- cator
BONDERITE M-CR T 5900 [®] AERO	Alodine® T 5900®	•	•	•						•	•	•	
BONDERITE M-CR T5900™ RTU AERO	Alodine® T 5900® RTU	•	•			•				•	•	•	
BONDERITE M-CR 871 TM AERO	Alodine [®] 871 [™] Touch-N-Prep [®] Pen	•	•						•				•

BONDERITE, known as ALODINE[®], conversion coating products per MIL-DTL-81706B, are actively managed by Henkel Aerospace Products and Services with NAVAIR. As required by NAVAIR, Henkel maintains rigorous formulation and manufacturing site control, as well as quality control batch release testing for these MIL-SPEC products. To extend the Henkel warranty and certification, customers are instructed to procure these products from authorized manufacturing sites and from Henkel authorized aerospace distributors. The customers are liable for compliance with its process requirements. For more information on Henkel products and approval sites per MIL-DTL-81706B, visit: www.henkel-adhesives.com/aerospace-distributor.

Metal Pretreatment: Conversion Coatings

Chrome 6 (MIL-SPEC)	•	•	•	•	
Chrome 3					
Non-Chrome					
Adhesion Promoter					
Aluminum	•	•	•	•	
Magnesium					
Magnesium – Die Cast					
Titanium					
Consistency	Liquid	Liquid	Liquid	Powder	
Form	Concentrated	Ready-to-Use	Concentrated	Concentrated	
Chemistry	Chromate	Chromate	Chromate	Chromate	
Time (Minutes)	2 – 5 Minutes	1 – 3 Minutes	2 – 5 Minutes	15 Seconds – 3 Minutes	
Temperature °F / °C	70 – 160°F 21 – 71°C	Ambient	Ambient	70 – 100°F 21 – 38°C	
Mix Ratio (Product : Water)	15 % by Volume	Used as Received	25%	6.3 lbs. / 100 gals. 7.55 g / L	
Time (Minutes)	15 – 30 Seconds	1 – 3 Minutes	2 – 5 Minutes	15 Seconds – 1 Minute	
Temperature °F / °C	70 – 160°F 21 – 71°C	Ambient	Ambient	70 – 100°F 21 – 38°C	
Mix Ratio (Product : Water)	15% by Volume	Used as Received	25%	6.3 lbs. / 100 gals. 7.55 g / L	
New Product Name	BONDERITE M-CR 1000L™ AERO	BONDERITE M-CR 1000RTU™ AERO	BONDERITE M-CR 1001™ AERO	BONDERITE M-CR 1200S™ AERO	
Known as	Alodine® 1000™ Liquid	Alodine® 1000™ RTU	Alodine [®] 1001™	Alodine [®] 1200S™	
Asia Pacific	Pail	-	Pail	Pail	
Europe / Middle East / Africa	-	-	-	Pail	
Latin America	Pail	Pail	Case	Pail	
North America	Drum, Pail	Bottle, Drum, Pail	Case, Drum	Bulk, Can, Drum	
	BONDERITE M-CR 1000L [™] AERO is a liquid chemical used to produce a protective coating on aluminum and its alloys. The coating provides protection for aluminum and excellent bond for organic coatings. It should be used when the characteristic aluminum appearance or finish is retained.	BONDERITE M-CR 1000RTU™ AERO is a ready-to-use aqueous solution for producing a protective coating on aluminum and its alloys. Its light coatings do not significantly change the appearance of the aluminum surface. The coating provides excellent protection for painted and unpainted aluminum and bonds paint well. It is specifically designed for touching up abraded or damaged areas on work previously treated with conversion coating chemicals.	BONDERITE M-CR 1001 [™] AERO is a nonflammable, chromic, acid-based coating chemical that produces a chrome conversion coating on aluminum and its alloys. This chrome conversion coating offers the best affordable substrate for both paint adhesion and corrosion resistance.	BONDERITE M-CR 12005 TM AERO is a powdered chemical used to produce a protective coating on aluminum to minimize corrosion and provide an improved bond for paint.	
	Chrome 3 Non-Chrome Adhesion Promoter Aluminum Magnesium - Die Cast Magnesium - Die Cast Titanium Consistency Form Consistency Form Chemistry Chemistry Time (Minutes) Time (Minutes) Time (Minutes) Time (Minutes) Time (Minutes) Mix Ratio (Product : Water) Time (Minutes) Seven Product Name Aix Ratio (Product : Water) Seven Product Name Aix Ratio (Product : Water) Mix Ratio (Product : Water) Aix Ratio (Product : Water) Seven Product Name	Chrome 3Non-ChromeAdhesion PromoterAluminumMagnesiumMagnesiumDi CastTitaniumConsistencyLiquidFormConsistencyLiquidChromateConsistencyLiquidFormConcentratedChemistryChromateTime (Minutes)2 - 5 MinutesTemperature °F / °C70 - 160°F 21 - 71°CMix Ratio (Product : Water)15 x by VolumeTemperature °F / °CMix Ratio (Product : Water)15 x by VolumeNew Product NameBONDERITE M-CR 10001 TM AEROAsia PacificPailLatin AmericaNorth AmericaBONDERITE M-CR 10001 TM AEROSo Secondsis a liquid chemical used to produce a protective coating on aluminum and excellent bond for organic coatings, is a liquid be used vhen the characteristic auminum appearance or finish is	ChromeImage: ChromeAdhesion PromoterImage: ChromeAdhesion PromoterImage: ChromeAdhesion PromoterImage: ChromeAdmesiumImage: ChromeMagnesiumImage: ChromeMagnesiumImage: ChromeMagnesiumImage: ChromeConsistencyLiquidConsistencyChromateChromateChromateChromateImage: ChromateChromateImage: ChromateTime (Minutes)2 - 5 MinutesTime (Minutes)2 - 5 MinutesTime (Minutes)15 - 30 SecondsTime (Minutes)15 - 30 SecondsTime (Minutes)15 - 30 SecondsTime (Minutes)15 - 30 SecondsTime (Minutes)15 - 30 SecondsTemperature "F / "C70 - 160"F 21 - 71"CMix Ratio (Product : Water)15% by VolumeNew Product NameBONDERITE M-CR 1000L" MacRONew Product NameBONDERITE M-CR 1000L" AEROAdai PacificPailAnia PacificPailAnia PacificPailNorth AmericaPailNorth AmericaPailNorth AmericaPailSi a liquid chemical used to produce a protective for painted and it is alloys. The coating a nation for producing aport coating on aluminum and ti salloys. The coating provides protection for aluminum and excellent protects protection for aluminum and excellent protects protection for aluminum and excellent protects protection for aluminum and excellent protects protection for aluminum and excell	Chrome 3Image: Chrome 3Image: Chrome 4Image: Chrome 4Nor-Chrome 4Image: Chrome 4Image: Chrome 4Adhesion PromoterImage: Chrome 4Image: Chrome 4Adminium 6Image: Chrome 4Image: Chrome 4Magnesium - Die CastImage: Chrome 4Image: Chrome 4Magnesium - Die CastImage: Chrome 4Image: Chrome 4TataniumConcentratedReady-to-UseConsistencyLiquidLiquidConsistencyChromateChromateChromateConcentratedChromateTime (Minutes)2 - 5 Minutes1 - 3 MinutesTime (Minutes)15 - 5 My OulumeUsed as ReceivedTime (Minutes)15 - 5 My OulumeUsed as ReceivedTime (Minutes)15 - 160°F 21 - 71°CAmbientMix Batio (Product : Water)155 by VolumeUsed as ReceivedTime (Minutes)15 - 160°F 21 - 71°CAmbientMix Batio (Product : Water)155 by VolumeUsed as ReceivedMix Batio (Product : Water)155 by VolumeUsed as ReceivedMix Batio (Product : Water)Sb ONDERITE M-CR 10001°M EUAlcolme* 1000°M EUNew Product NameRollAlabarcincPailCaseNameriaAlcolme* 1000°M ItaliadAlcolme* 1000°M RUNationa AmeriaDONDERITE M-CR 1000°M RUAlcolme* 1000°M RUNationa AmeriaDONDERITE Chrome 7-AlabarcincPailCaseNath AmeriaDONDERITE Chrome 7	Chrome 3 Non-Chrome Image: Chrome 4 Addresion Pomoder Image: Chrome 4 Image: Chrome 4 Image: Chrome 4 Image: Chrome 4 Adgrestion Image: Chrome 4 Image: Chrome 4 Image: Chrome 4 Image: Chrome 4 Adgrestion Image: Chrome 4 Image: Chrome 4 Image: Chrome 4 Image: Chrome 4 Consistency Image: Chrome 4 Chromate Concentrated 6 Concentrated 7 Consistency Image: Chromate Chromate Chromate Chromate 7 Consistency Image: Chromate Chromate Chromate Chromate 7 Chromate Chromate Chromate Chromate 7 The Chromate 7 Time (Minutes) 15 - Staty Chromate Lised as Received 255 15 Sconds - 3 Minutes 7 Time (Minutes) 15 - 30 Seconds 1 - 3 Minutes 2 - 5 Minutes 15 - 30 Seconds 7 Time (Minutes) 15 - 30 Seconds 1 - 3 Minutes 2 - 5 Minutes 15 - 30 Seconds 7 Time (Minutes) 15 - 30 Seconds 1 - 3 Minutes 2 - 5 Minutes 13 - 30 Seconds 7 Time (Minutes) 15 Staty Volume Used as Received 25% 6 - 3 Mis / 100 O/S / 7.5 S / 1 - 3 S / 1 - 3 / 7.5 S / 1 - 3 / 7.5 S / 1

Alodine* 1600 [™] Alodine* 600 [™] RTUAlodine* 1200 [™] Alodine* 1201 [™] Alodine* 1132 [™] Touch-N-Prep* Coatin Touch-N-Prep* CoatinPailPailPailPailPailPenPail-Pail-Pen-DrumPail-Pail-PenDrumPailPail-PailPenBottle, Drum, PailCan, Drum, PailBottle, Drum, Pail, Tote-Bottle, Case, Drum, TotePenBonDERITE M-CR 1600 [™] AERO is a concentrated liquid two-package chemical used to produce a chromate conversion coating on aluminum and its alloys, which range in color fom ight, iridescent gold to an. It can be applied by immersion or spray methods, does not contain complex cyanides, and isBONDERITE M-CR 1600 [™] AERO is operated at room temperature. The coating produced minimizes corrosion and provides an corrosion and provides an is operated at room temperature. The coating produced minimizes corrosion and provides an contain complex cyanides, and isBonte RTE M-CR 1600 [™] AERO is a provide a difficated at some soperated at room temperature. The coating produced minimizes corrosion and provides and contain complex cyanides, and is on to contain complex cyanides, and is a roomBONDERITE M-CR 1600 [™] AERO is a provides and contain complex cyanides, and isBONDERITE material datiminum and bonds paint well.BONDERITE ACR 1000 [™] AERO is a provides an corrosion and provides anBONDERITE material datiminum and is a provides and an is alloys. The color from light iridescent produce dinminizes <th></th> <th></th> <th></th> <th>1</th> <th>1</th> <th>1</th> <th></th>				1	1	1	
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Chromate Chromate Chromate Chromate Chromate Chromate 1 - 5 Minutes 1 - 5 Minutes 1 - 5 Minutes - 15 Seconds - 3 Minutes 2 - 5 Minutes Until Dry 0 - 130* 70 - 100* 2 - 5 Minutes 2 - 5 Minutes Mabient - 100* Ambient - 38°C Ambient - 38°C 0 - 554°C 21 - 38°C - 63 Ibs / 100 gals. 335 by Volume Used as Received 1 - 5 Minutes 1 - 3 Minutes 1 - 5 Minutes 15 Seconds - 1 Minute 2 - 5 Minutes - 1 - 5 Minutes 1 - 3 Minutes 1 - 5 Minutes 15 Seconds - 1 Minute 2 - 5 Minutes - 1 - 5 Minutes 1 - 3 Minutes 1 - 5 Minutes 15 Seconds - 1 Minute 2 - 5 Minutes - 1 - 5 Minutes 1 - 3 Minutes 1 - 5 Minutes 15 Seconds - 1 Minute 2 - 5 Minutes - 1 - 5 Minutes 1 - 5 Minutes 1 - 5 Minutes 15 Seconds - 1 Minute 2 - 5 Minutes - 1 - 5 Minutes 1 - 5 Minutes 1 - 5 Minutes Minet - 3 Seconds - 1 Minute - -	Concentr				Concentrated		
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60 - 130°F 16 - 5 4°C 70 - 100°F 21 - 38°C - 70 - 100°F 21 - 38°C Ambient - 100°F Ambient - 38°C Ambient 0.65% v/v 1.3% v/v 12.5 lbs / 100 gais. 1.3% v/v 12.5 lbs / 100 gais. 1.3% v/v - 6.3 lbs / 100 gais. 7.55 g/L 33% by Volume Used as Received 1 - 5 Minutes 1 - 3 Minutes 1 - 3 Minutes 1 - 5 Minutes 2 - 5 Minutes - - 1 - 5 Minutes 1 - 3 Minutes 1 - 3 Minutes 1 - 5 Minutes 15 Seconds - 1 Minute 2 - 5 Minutes - 1 - 5 Minutes 1 - 3 Minutes 1 - 3 C 70 - 100°F 21 - 38°C 70 - 100°F 21 - 38°C Ambient - 100°F 4 Molent - 100°F - 0.655% v/v 1.3% v/v 12.5 lbs / 100 gais. 1.3% v/v 12.5 lbs / 100 gais. 15 g / L S0% - 100% v/v - - BONDERITE M-CR 100°M AERO BONDERITE M-CR 600°M AERO Alodine* 600°M RTU Alodine* 1200°M Alodine* 1201°M Alodine* 112°M 4CR 132°M AERO 0 Pail - Pail - Pail - Pen 0 Pail - Pail - BONDERITE M-CR 820°M AERO BoNDERITE M-CR		Chromate	Cilloniate	Chromate	Chromate	Chromate	Chromate
16 - 54°C 21 - 38°C - 21 - 38°C Ambient - 38°C Ambient - 38°C 0.65% / v 12.5 lbs / 100 gals. 12.5 lbs / 100 gals. - 5.3 lbs / 100 gals. 33% by Volume Used as Received 1 - 5 Minutes 1 - 3 Minutes 1 - 5 Minutes 1 - 5 Minutes 1 - 5 Minutes 2 - 5 Minutes - 60 - 130°F 70 - 100°F 70 - 100°F 70 - 100°F Ambient - 100°F Ambient - 38°C - 0.65% v/ v 12.5 lbs / 100 gals. 70 - 100°F 21 - 38°C 25 lbs / 100 gals. 50% - 100% v/ v - 0.65% v/ v 12.5 lbs / 100 gals. 15 g / L Used as Received 5.3 lbs / 100 gals. 50% - 100% v/ v - 1.3% v / v 12.5 lbs / 100 gals. 15 g / L Used as Received Alodine* 1200°M AERO BONDERITE M-CR 1200°M AERO BONDERITE M-CR 120°M AERO BONDERITE M-CR 120°M AERO Modine* 1132°M TOUCH-N-Prep* Coattri 1.3% v / v 1.5 lbl / 10 gals. 15 g / L Alodine* 600°M RTU Alodine* 120°M AERO Alodine* 1132°M AERO 1.3% v / v Alodine* 600°M AERO Alodine* 600°M RTU Alodine* 120°M AERO RooteRTTE M-CR 1200°M AERO RooteRTTE M-CR 120°M AERO	1	– 5 Minutes	1 – 5 Minutes	-	15 Seconds – 3 Minutes	2 – 5 Minutes	Until Dry
0.65% v/v 12.5 lbs. / 100 gals. 1.3% v/v 1.25 lbs. / 100 gals. 1.5 g / L 33% by Volume Used as Received 1 1.5 Minutes 1 - 3 Minutes 1 - 5 Minutes 1 - 5 Minutes 2 - 5 Minutes - 10 0.65% v/v 12.5 lbs. / 100 gals. 13 s v/v 70 - 100°F 70 - 100°F 70 - 100°F Ambient - 100°F - 0.65% v/v 12.5 lbs. / 100 gals. 15 g / L 12.5 lbs. / 100 gals. 15 g / L Used as Received 6.3 lbs. / 100 gals. 7.5 g / L 50% - 100°F - 0.65% v/v 12.5 lbs. / 100 gals. 15 g / L Used as Received 6.3 lbs. / 100 gals. 7.5 g / L 50% - 100°F - - 0.65% v/v 12.5 lbs. / 100 gals. 15 g / L Used as Received 6.3 lbs. / 100 gals. 7.5 g / L 50% - 100°F - - 0.65% v/v 12.5 lbs. / 100 gals. 15 g / L Used as Received 6.3 lbs. / 100 gals. 7.5 g / L 50% - 100°F - - 0.65% v/v 12.5 lbs. / 100 gals. 15 g / L Used as Received 6.3 lbs. / 100°F 50% - 100°F - - 0.610 er 12.0 lbs. / 100 gals. 15 g / L 12.5 lbs. / 100 gals. 7.5 g / L - - Alodine* 1201°A ERO Alodine* 1201°A ERO -				_			Ambient
1.3% v/v 15 g/L - 7.55 g/L 33.8 v/v0lume Used as Received 1.3% v/v 1.5 Minutes 1 - 5 Minutes 1 - 5 Minutes 2 - 5 Minutes - 60 - 130°F 70 - 100°F 70 - 100°F 21 - 38°C Ambient - 100°F Ambient - 38°C - 0.65% v/v 12.5 lbs. / 100 gals. 15 g/L Verd as Received 6.3 lbs. / 100 gals. 50% - 100% v/v - 1.3% v/v 12.5 lbs. / 100 gals. 15 g/L Used as Received 6.3 lbs. / 100 gals. 50% - 100% v/v - 1.3% v/v 12.5 lbs. / 100 gals. 15 g/L Used as Received 6.3 lbs. / 100 gals. 50% - 100% v/v - MCR 1600 ^{MA} AERO BONDERITE MCR 600T ^{MA} AERO BONDERITE MCR 1200 ^{MA} AERO BONDERITE MCR 120 ^{MA} AERO Alodine* 1201 ^{MA} Alodin							
60 - 130°F 16 - 54°C 70 - 100°F 21 - 38°C 70 - 100°F 21 - 38°C 70 - 100°F 21 - 38°C Ambient - 100°F Ambient - 38°C - 0.55 % / v 12.5 lbs, / 100 gals. 15 g / L 12.5 lbs, / 100 gals. 15 g / L Used as Received 5.3 lbs, / 100 gals. 7.5 g / L 50% - 100% v / v - BONDERITE M-CR 1600° AERO BONDERITE M-CR 600° AERO BONDERITE M-CR 600° AERO BONDERITE M-CR 600° AERO BONDERITE M-CR 1200° AERO BONDERITE M-CR 1200° AERO BONDERITE M-CR 1201° AERO BONDERITE M-CR 1201° AERO BONDERITE M-CR 1201° AERO Alodine* 132° Touch-N-Prep* Coatin 0 - Pail Pail Pail Pail Pen - Pail Pail Pail Pen Pen Pen 0 Drum Pail Pail Pen Pen </td <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td>33% by Volume</td> <td>Used as Received</td>				-	-	33% by Volume	Used as Received
60 - 130°F 16 - 54°C 70 - 100°F 21 - 38°C 70 - 100°F 21 - 38°C 70 - 100°F 21 - 38°C Ambient - 100°F Ambient - 38°C - 0.55 % / v 12.5 lbs, / 100 gals. 15 g / L 12.5 lbs, / 100 gals. 15 g / L Used as Received 5.3 lbs, / 100 gals. 7.5 g / L 50% - 100% v / v - BONDERITE M-CR 1600° AERO BONDERITE M-CR 600° AERO BONDERITE M-CR 600° AERO BONDERITE M-CR 600° AERO BONDERITE M-CR 1200° AERO BONDERITE M-CR 1200° AERO BONDERITE M-CR 1201° AERO BONDERITE M-CR 1201° AERO BONDERITE M-CR 1201° AERO Alodine* 132° Touch-N-Prep* Coatin 0 - Pail Pail Pail Pail Pen - Pail Pail Pail Pen Pen Pen 0 Drum Pail Pail Pen Pen </td <td>1</td> <td>– 5 Minutes</td> <td>1 – 3 Minutes</td> <td>1 – 5 Minutes</td> <td>15 Seconds – 1 Minute</td> <td>2 – 5 Minutes</td> <td>_</td>	1	– 5 Minutes	1 – 3 Minutes	1 – 5 Minutes	15 Seconds – 1 Minute	2 – 5 Minutes	_
16 - 54°C21 - 38°C21 - 38°C21 - 38°CAmbient - 38°CT0.65% // 13%							
1.3% v / v 1 5 g / L Used as keeved 7.55 g / L 50% - 100% v / v - 1.3% v / v 1 5 g / L 1 5 g / L 0 00 ERITE BONDERITE BONDERITE BONDERITE M-CR 600 TM AERO BONDERITE BONDERITE M-CR 1201 TM AERO Alodine* 1201 TM AERO Alodine* 1132 TM AERO Alodine* 1600 TM Alodine* 600 TM Alodine* 600 TM AERO Alodine* 1201 TM Alodine* 1201 TM Alodine* 1201 TM Alodine* 1132 TM AERO - Pail Pail Pail Pail Pail Pen - Pail Pail Pail Pen Pen Drum Pail Pail Pen Pen Pen Bottle, Drum, Pail Can, Drum, Pail Bottle, Drum, Pail, Tote Pen Pen Pen M-CR 100 TM AERO Bottle, Drum, Pail Bottle, Drum, Pail, Tote Pen Pen Pen Pen Pen BONDERITE M-CR 600 TM AERO Bottle, Drum, Pail, Tote - Bottle, Case, Drum, Tote Pen Pe		16 – 54°C	21 – 38°C		21 – 38°C		-
BONDERITE M-CR 1600 ^{IM} AERO BONDERITE M-CR 600 ^{IM} AERO BONDERITE M-CR 600 ^{IM} AERO BONDERITE M-CR 600 ^{IM} AERO BONDERITE M-CR 1132 ^{IM} AERO BONDERITE M-CR 1132 ^{IM} AERO Alodine* 1600 ^{IM} Alodine* 600 ^{IM} Alodine* 600 ^{IM} RTU Alodine* 1200 ^{IM} Alodine* 1201 ^{IM} Alodine* 1132 ^{IM} Touch-N-Prep* Coatin - Pail Pail Pail Pail Pen - Pail - Pail Pen Drum Pail Pail - Pail Pen Bottle, Drum, Pail Can, Drum, Pail Bottle, Drum, Pail Bottle, Drum, Pail Bottle, Drum, Tote Pen BonDERITE M-CR 600 ^{IM} AERO is a concentrated liquid two-package chemical used to produce a chromate conversion coating on aluminum and its aloys, which range in color ing on aluminum and its alloys. The color ranges from light, iridescent gold by immersion or spray methods, dees not contain particularly recommended where a low delectricit rom light ridescent gold to tan. It des not contain comylex BonDERITE methods, dees not contain particularly recommended where a low delectricit BonDERITE methods, dees not contain produced provides excellent protective coating on aluminum and its alloys. BonDERITE methods, dees not contain produced provides excellent protection for unpainted aluminum and bonds paint well. BonDERITE methods, dees not contain produced provides an imp			-	Used as Received	-	50% – 100% v / v	-
M-CR 1600 [™] AEROM-CR 600 [™] AEROM-CR 600RU [™] AEROM-CR 1201 [™] AEROM-CR 1201 [™] AEROM-CR 1132 [™] AEROAlodine [®] 1600 [™] Alodine [®] 600 [™] Alodine [®] 600 [™] RTUAlodine [®] 1201 [™] Alodine [®] 1201 [™] Alodine [®] 1132 [™] Touch-N-Prep [®] CoatinImage: Complex Comple							
Alodine* 1600***Alodine* 600***Alodine* 600***Alodine* 1201***Alodine* 1201***Alodine* 1201***Touch-N-Prep* CoatinImage: Control in the state of the st							BONDERITE M-CR 1132™ AERO
Image: PailPailPailPailPenDrumPailPail-PailPenBottle, Drum, PailCan, Drum, PailBottle, Drum, Pail, Tote-Bottle, Case, Drum, TotePenBONDERITE M-CR 1600 TM AERO is a concentrated liquid two-package chemical used to produce a chromate conversion coating on aluminum and all its alloys. The colating contain complex cyanides.BONDERITE M-CR 600 TM AERO is a powdered chemical used to produce a chromate conversion coating of to tan. It can be applied by immersion or spray methods, does not contain complex cyanides, and is particularly recommended where a low dielectricBONDERITE M-CR 600TM AERO is a ready-to-use liquid produce thoroide to suce labor of from light, iridescent gold to tan. It can be applied by immersion or spray methods, does not contain complex cyanides, and is particularly recommended where a low dielectric resistance coating isBONDERITE M-CR 600TM AERO is a ready-to-use liquid produce thoroide to an altoninum and its alloys. The coating produce thoroides an inproved bond for paint.BONDERITE M-CR 132 TM AERO is a nonflammable, s a nonflam	Alo	dine® 1600™	Alodine [®] 600™	Alodine® 600™ RTU	Alodine [®] 1200™	Alodine® 1201™	Alodine® 1132™ Touch-N-Prep® Coating
DrumPailPailPailPailPailBottle, Drum, PailCan, Drum, PailBottle, Drum, Pail, Tote-Bottle, Case, Drum, TotePenBottle, Drum, PailCan, Drum, PailBottle, Drum, Pail, Tote-Bottle, Case, Drum, TotePenBonDERITE M-CR 1600 TM AERO is a concurtated liquid two-package chemical used to produce a chromate conversion coating on aluminum and all its alloys. The color ranges from light ridescent gold to tan. It des not contain complex cyanides.BONDERITE M-CR 600 TM AERO is a ready-to-use liquid product which produces a chromate conversion coating on aluminum and all its alloys. The coating on aluminum and its alloys, which range in color from light, ridescent gold to tan. It can be applied by immersion or spray methods, dees not contain complex cyanides, and is particularly recommended where a low dielectric resistance coating isBONDERITE M-CR 100T ^M AERO is a ready-to-use liquid produced provides excellent protection for unpainted aluminum and provides an inproved bond for paint.BONDERITE M-CR 132T ^M AERO is designed to asve labo excellent protection for unpainted aluminum and provides an inproved bond for paint.BONDERITE M-CR 100T ^M AERO is designed to contain coating on aluminum and its alloys, which range in color from light ridescent gold to tan. It can be applied bonds paint well.BONDERITE m-CR 100T ^M AERO is operated at room temperature. The coating produced minimizes corrosion and provides an improved bond for paint.BONDERITE m-CR 100T ^M AERO is designed to chromate conversion coating on aluminum and its alloys, which range in color from light ri		-	Pail	Pail	Pail	Pail	Pen
Bottle, Drum, PailCan, Drum, PailBottle, Drum, Pail, Tote-Bottle, Case, Drum, TotePenBONDERITE M-CR 1600 TM AERO is a concentrated liquid two-package chemical used to produce a chromate conversion coating on aluminum and all its alloys. The color ranges from light, iridescent gold to tan. It does not contain complex cyanides.BONDERITE M-CR 600 TM AERO is a ready-to-use liquid product which produces a chromate conversion coating on aluminum and its alloys, which range in color from light, iridescent gold to tan. It can be applied by immersion or spray methods, does not contain complex cyanides.BONDERITE M-CR 1200 TM AERO is a powdered chemical used to produce a chromate conversion coating on aluminum and its alloys, which range in color from light, iridescent gold to tan. It can be applied bonds paint well.BONDERITE M-CR 1200 TM AERO is a powdered chemical used to produce a color from light iridescent gold to tan. The process is operated at room temperature. The coating produced minimizes corrosion and provides an improved bond for paint.BONDERITE M-CR 1200 TM AERO is a nonflammable, chromate conversion coating on aluminum and its alloys. The coating produced provides excellent protection for upainted aluminum and bonds paint well.BONDERITE M-CR 1200 TM AERO is a powdered chemical used to produce a coating on aluminum and its alloys. The coating on aluminum and to tan. It can be applied to tan. I		-	Pail	-	Pail	-	Pen
Bottle, Drum, Pail Can, Drum, Pail Bottle, Drum, Pail, Tote - Bottle, Case, Drum, Tote Pen BONDERITE M-CR 1600 TM AERO is a concentrated liquid two-package chemical used to produce a chromate conversion coating on aluminum and all its alloys. The color ranges from light, iridescent gold to tan. It does not contain complex cyanides. BONDERITE M-CR 600 TM AERO is a powdered chemical used to produce a chromate conversion coating on aluminum and all its alloys. The color ranges from light, iridescent gold to tan. It can be applied by immersion or spray methods, does not contain complex cyanides. BONDERITE M-CR 600 TM AERO is a powdered chemical used to produce a chromate conversion coating on aluminum and its alloys. The coating on aluminum and is alloys. The coating produced provides excellent protection for upainted aluminum and bonds paint well. BONDERITE M-CR 1200 TM AERO is a powdered chemical used to produce a chromate conversion coating on aluminum and its alloys. The coating produced provides corrosion and provides an improved bond for paint. BONDERITE M-CR 1201 TM AERO is a nonflammable, chrome conversion coating on aluminum and its alloys. The coating produced provides corrosion and provides an improved bond for paint. BONDERITE M-CR 1201 TM AERO is a nonflammable, chrome conversion coating for touch-up applications. Its proper use also reduces workeu contact to chromated solution and decreases wastewater such as rins water generated from a chromating process.		Drum	Pail	Pail	-	Pail	Pen
BONDERITE M-CR 1600 TM AERO is a concentrated liquid two-package chemical used to produce a chromate conversion coat- ing on aluminum and its alloys, which range in color from light, iridescent gold to tan. It does not contain complex cyanides.BONDERITE M-CR 600 TM AERO is a powdered chemical used to produce a chromate conversion coat- ing on aluminum and its alloys, which range in color from light, iridescent gold to tan. It does not contain complex cyanides.BONDERITE M-CR 600T ^M AERO is a powdered chemical used to produce a chromate conversion coat- ing on aluminum and its alloys, which range in color from light, iridescent gold to tan. It can be applied by immersion or spray methods, does not contain complex cyanides.BONDERITE M-CR 1201 TM AERO is a powdered chemical used to produce a coating on aluminum and its alloys. The color ranges from light iridescent gold to tan. It methods, does not contain complex cyanides, and is particularly recommended where a low dielectric resistance coating isBONDERITE M-CR 1201 TM AERO is a powdered chemical used to produce a coating on aluminum and bonds paint well.BONDERITE M-CR 1200 TM AERO is a powdered chemical used to produce a produced provides excellent protection for unpainted aluminum and bonds paint well.BONDERITE M-CR 1200 TM AERO is a powdered chemical used to produce a coating on aluminum and its alloys.BONDERITE M-CR 1201 TM AERO is a powdered chemical used to produce a ing on aluminum and its alloys, which range in color from light, iridescent produced provides excellent protection for unpainted aluminum and bonds paint well.BONDERITE M-CR 1201 TM AERO is a powdered chemical used to pr	Bot				_		
M-CR 1600 TM AERO is a concentrated liquid two-package chemical used to produce a chromate conversion coat- ing on aluminum and its ad all its alloys. The color ranges from light iridescent gold to tan. It does not contain complex cyanides.M-CR 600TM AERO is a powdered chemical used to produce a chromate conversion coat- is a consum and its alloys, which range in color rom light, iridescent gold by immersion or sprayM-CR 600TU TM AERO is a ready-to-use liquid product which produces a chromate conversion coating on aluminum and its alloys. The color ranges from light iridescent gold to tan. It does not contain complex cyanides.M-CR 600T TM AERO is a powdered chemical used to produce a coating on aluminum and its alloys. The coating on aluminum and is alloys. The coating on aluminum and if descent gold to tan. It does not contain complex cyanides.M-CR 600T TM AERO is a powdered chemical used to produce a coating on aluminum and is alloys. The coating produced provides excellent protection for unpainted aluminum and bonds paint well.M-CR 1201 TM AERO is a powdered chemical used to produce a or aluminum and its alloys.M-CR 1201 TM AERO is a nonflammable, chromic, acid-based coating on aluminum and its alloys.M-CR 1201 TM AERO is a nonflammable, chromic, acid-based coating on aluminum and its alloys.M-CR 1201 TM AERO is a nonflammable, chromic acid based coating on aluminum and its alloys.M-CR 1201 TM AERO is a nonflammable, chromic acid-based coating on aluminum and its alloys.M-CR 1201 TM AERO is a nonflammable, chromic acid-based coating on aluminum and its alloys.M-CR 1201 TM AERO is a nonflammable, chromic acid based coating on alum		ic, bruin, rui		bottle, bruin, ruii, rote			
	M-CR 16 is a conc two-pact used to p chromatu coating o and all it color ran iridescen does not	DO™ AERO entrated liquid age chemical orduce a e conversion on aluminum s alloys. The ges from light t gold to tan. It contain complex	M-CR 600 [™] AERO is a powdered chemical used to produce a chromate conversion coat- ing on aluminum and its alloys, which range in color from light, iridescent gold to tan. It can be applied by immersion or spray methods, does not contain complex cyanides, and is particularly recommended where a low dielectric resistance coating is	M-CR 600RTU [™] AERO is a ready-to-use liquid product which produces a chromate conversion coating on aluminum and its alloys. The coating produced provides excellent protection for unpainted aluminum and	M-CR 1200 [™] AERO is a powdered chemical used to produce a protective coating on aluminum which ranges in color from light iridescent gold to tan. The process is operated at room temperature. The coating produced minimizes corrosion and provides an	M-CR 1201 [™] AERO is a nonflammable, chromic, acid-based coating chemical that produces a chrome conversion coating	M-CR 1132 TM AERO is designed to save labor material and time when applying a dry-in-place hexachrome conversion coating for touch-up applications. Its proper use also reduces worker contact to chromated solution and decreases wastewater such as rinss water generated from a

Metal Pretreatment: Conversion Coatings

Applications	Chrome 6 (MIL-SPEC)	•				
	Chrome 3		•	•	•	
	Non-Chrome					
	Adhesion Promoter					
ubstrate	Aluminum		•	•	•	
	Magnesium	•		•		
	Magnesium – Die Cast	•		•	•	
	Titanium			•	•	
Product	Consistency	Liquid	Liquid	Liquid	Liquid	
Characteristics	Form	Ready-to-Use, Two-Part Kit	Ready-to-Use	Concentrated	Ready-to-Use	
	Chemistry	Chromate	Trivalent Chrome	Trivalent Chrome	Trivalent Chrome	
Process	Time (Minutes)	_	_	5 – 10 Minutes	5 – 10 Minutes	
Immersion)				75 – 110°F	70 – 100°F	
	Temperature °F / °C	_		24 – 42°C	21 – 38°C	
	Mix Ratio (Product : Water)	-	-	3 – 10% by Volume	Used as Received	
Process	Time (Minutes)	Until Dry	-	1.5 – 3 Minutes	1.5 – 3 Minutes	
Spray)	Temperature °F / °C	Ambient	-	75 – 110°F 24 – 42°C	70 – 100°F 21 – 38°C	
	Mix Ratio (Product : Water)	Used as Received	-	3 – 10% by Volume	Used as Received	
Products	New Product Name	BONDERITE M-CR MAGNESIUM AERO	BONDERITE M-CR 871™ AERO	BONDERITE M-CR T5900™ AERO	BONDERITE M-CR T5900™ RTU AERO	
	Known as	Alodine® Magnesium Treatment Kit	Alodine [®] 871™ Touch-N-Prep [®] Coating	Alodine® T 5900®	Alodine® T 5900® RTU	
Regional	Asia Pacific	Kit	Pen	_	-	
Availability & Packaging	Europe / Middle East / Africa	-	Pen	-	-	
	Latin America	-	-	-	-	
	North America	Kit, Drum	Pen	Bottle, Drum, Pail	Drum, Pail, Tote	
Description		BONDERITE M-CR MAGNESIUM AERO contains products formulated for treating magnesium alloys to produce a chromate conversion coating conforming to SAE AMS-M-3171, Type VI. The application method conforms to requirements in NAVAIR 01-1A-509 and is meant primarily for touch-up and corrosion repair processes of magnesium alloys.	BONDERITE M-CR 871 [™] AERO is a trichrome dry-in- place conversion coating designed for use on aluminum and its alloys. The applicator used to deliver this product provides an easy and safe method of repairing bare areas of aluminum surfaces. Its proper use reduces worker contact to chemical solutions and decreases wastewater such as rinse water generated from a conversion coating process.	BONDERITE M-CR T5900 [™] AERO treatment develops a complex trivalent chromium conversion coating on aluminum and its alloys, metals coated with IVD aluminum, magnesium, titanium and zinc surfaces. The process provides bare ASTM-B117 salt spray resistance and serves as an excellent base for bonding of paints and adhesives.	BONDERITE M-CR T5900 TM RTU AERO treatment is a complex trivalent chromium conversion coating formulated for treating aluminum and its alloys, metals coated with IVD aluminum, magnesium, titanium and zinc surfaces. This product is formulated as a ready-to-use material for manual spray applications.	

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۰. ۰. ۱. ۲. ۲. ۲. ۲. ۲. ۲. ۲. ۲. ۲. ۲	Ready-to-Use Acid - - - 1 - 5 Minutes Ambient	Ready-to-Use Non-chrome, Organic - - Dry-in-Place Ambient
Concentrated Acid 30 Seconds – 5 Minutes Ambient 1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Ready-to-Use Acid - - - 1 - 5 Minutes Ambient	Ready-to-Use Non-chrome, Organic - - Dry-in-Place Ambient
Concentrated Acid 30 Seconds – 5 Minutes Ambient 1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Ready-to-Use Acid - - - 1 - 5 Minutes Ambient	Ready-to-Use Non-chrome, Organic - - Dry-in-Place Ambient
Concentrated Acid 30 Seconds – 5 Minutes Ambient 1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Ready-to-Use Acid - - - 1 - 5 Minutes Ambient	Ready-to-Use Non-chrome, Organic - - Dry-in-Place Ambient
Concentrated Acid 30 Seconds – 5 Minutes Ambient 1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Ready-to-Use Acid - - - 1 - 5 Minutes Ambient	Ready-to-Use Non-chrome, Organic - - Dry-in-Place Ambient
Concentrated Acid 30 Seconds – 5 Minutes Ambient 1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Ready-to-Use Acid - - - 1 - 5 Minutes Ambient	Ready-to-Use Non-chrome, Organic - - Dry-in-Place Ambient
Concentrated Acid 30 Seconds – 5 Minutes Ambient 1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Ready-to-Use Acid - - - 1 - 5 Minutes Ambient	Ready-to-Use Non-chrome, Organic - - Dry-in-Place Ambient
Acid 30 Seconds – 5 Minutes Ambient 1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Acid - - - 1 – 5 Minutes Ambient	Non-chrome, Organic
30 Seconds – 5 Minutes Ambient 1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	– – – 1 – 5 Minutes Ambient	- - Dry-in-Place Ambient
Ambient 1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Ambient	Ambient
1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Ambient	Ambient
1 – 8% 30 Seconds – 5 Minutes Ambient 1 – 8%	Ambient	Ambient
30 Seconds – 5 Minutes Ambient 1 – 8%	Ambient	Ambient
Ambient 1 – 8%	Ambient	Ambient
1 – 8%		
	Used as Received	Used as Received
RONDERITE		
M-NT 5200 [™] AERO	BONDERITE M-NT 5700™ AERO	BONDERITE M-NT 8800™ AERO
Alodine® 5200™ Makeup	Alodine [®] 5700™	Alodine [®] 8800™
-	-	-
-	Pail	-
-	-	-
Bottle, Drum, Pail	Bottle, Case, Drum, Pail	Pail
BONDERITE M-NT 5200 [™] AERO reatment is a chromium- ree product and pecifically formulated for reating aluminum and ts alloys. It may be used by spray or immersion. The process provides an excellent base for organic inishes.	BONDERITE M-NT 5700 TM AERO treatment is a chromium- free conversion coating specifically formulated for treating aluminum and its alloys. This product is formulated as a ready- to-use material for spray applications. The process provides an excellent base for organic finishes.	BONDERITE M-NT 8800 TM AERO is a sol-gel coating replacement specifically formulated for increasing adhesion to aluminum and titanium alloys. This product is suitable for spray, brush, and wipe-on applications. The coating produced provides an excellent base for organic finishes and surface preparation for adhesive bonding. It should not be rinsed after application.
re re re re re re re	-NT 5200 [™] AERO eatment is a chromium- ee product and becifically formulated for eating aluminum and is alloys. It may be used y spray or immersion. he process provides an eccellent base for organic	-NT 5200TM AEROM-NT 5700TM AERO eatment is a chromium- ee product andtreatment is a chromium- free conversion coatingbecifically formulated for eating aluminum and s alloys. It may be used (y spray or immersion. ne process provides an ccellent base for organic nishes. M-NT 5700TM AERO treatment is a chromium- free conversion coating specifically formulated for treating aluminum and its alloys. This product is formulated as a ready- to-use material for spray applications. The process provides an excellent base

Maskants

For professional protection of parts: **BONDERITE maskants for chemical** milling process

Protect all non-etched areas ...

Masking is the process of applying a coating to the metal surface to protect areas which will not be etched. Maskants are used to protect or repair edges, surface damage and cover tooling holes.

... but do it the easy way - with BONDERITE maskants

Why are Henkel's solutions the "easy way of masking"? First of all, because they allow many ways of application: by dip, spray, flow-coat or brush. Secondly, they save working hours as air dry copes with many of these applications. And thirdly, they are easy to remove by hand-peeling.

BONDERITE maskants: Facts at a glance

BONDERITE maskants key features:

- > Solvent-borne and 100 percent Solids (2K)
- > Fast curing
- > No oven drying / curing required
- > Time-saving process

Key factors to consider when choosing the right BONDERITE maskant

- > Sufficient adhesion resistance
- > Chemical resistance

Chemical Milling: Maskants

Applications						
Applications	Maskants	•	•	•		•
Substrate	Aluminum	•	•	•		•
	Composites Material					
	Magnesium	•	•			
	Magnesium – Die Cast					
	Mild Steel	•	•			
	Stainless Steel					
	Titanium	•	•			
	Ferrous			•		
	Nonferrous			•		
Product	Consistency	Liquid	Liquid	Liquid	Liq	uid
Characteristics	Form	Ready-to-Use	Ready-to-Use	Ready-to-Use	Two-P	art Kit
	Chemistry	Solvent-Based Coating	Solvent-Based Coating	Solvent-Based Coating	Polyur	ethane
Process	Time (Minutes)	-	_	_	-	_
(Immersion)	Temperature °F / °C	68 – 86°F 20 – 30°C	-	-	-	-
	Mix Ratio (Product : Water)	Use as Received	-	-	-	_
Process	Time (Minutes)	-	_	_	-	_
(Spray)	Temperature °F / °C	-	Hot Airless Spray: 158 – 176°F 70 – 80°C	Hot Airless Spray: 158 – 176°F 70 – 80°C	-	-
	Mix Ratio (Product : Water)	-	Use as Received	Use as Received	1	:1
Products	New Product Name	BONDERITE S-MA 522™ AERO	BONDERITE S-MA 551™ LA-2 AERO	BONDERITE S-MA 5580™ G AERO	BONDERITE S-MA M-4001 [™] AERO	BONDERITE S-MA M-4002™ AERO
	Known as	Turco® Mask 522™	Turco® Mask 551™ LA 2	Turco [®] 5580-G™	Turco® M4001™ (Pol)	Turco® M4002™ (Iso)
Regional	Asia Pacific	Drum, Pail	Pail	Drum, Pail	_	_
Availability & Packaging						
	Europe / Middle East / Africa	Pail	Drum, Pail, Tote	Drum, Pail	Drum	Drum
		Pail	Drum, Pail, Tote -	Drum, Pail	Drum –	Drum
	Africa	Pail - Drum	Drum, Pail, Tote - -	Drum, Pail - Drum	Drum – –	Drum -
Description	Africa Latin America	-	Drum, Pail, Tote - - BONDERITE S-MA 551 TM LA-2 AERO is a blue, hand-strippable coating formulated to provide protection to metal surfaces during successive fabrication operations such as: chemical milling, forming, chemical cleaning, conversion coating, Type I and Type II anodizing, adhesive bonding and machining.	-	- BONDERITE S-MA M-400 M-4002 TM AB is a 100 perce two-compone polyurethane curing, hand- coating that p protection of	- - - - - - - - - - - - - - - - - - -

Aircraft depainting is no small task. Unless you choose BONDERITE paint removers

How to depaint your aircraft professionally

When performing aircraft corrosion checks and paint modifications, it is important to choose consistent and reliable depaint and repaint systems with industry-leading OEM qualifications.

And how to improve it easily: with BONDERITE

There is a way to make the complex as easy as possible: Henkel's BONDERITE depaint technologies are NESHAP compliant, thixotropic products – solvent, hydrogen peroxide and water-based. They are easy to apply as they cling to vertical surfaces. Furthermore, they eliminate the surface contamination of mechanical removal methods.

Why choose BONDERITE paint strippers?

- > Reduction of material used, waste generated and overall costs
- > Reduction of total paint stripping time
- > Low to no odor, improved operator conditions
- > Meets leading OEM process specifications

BONDERITE paint stripper: Facts at a glance

Key factors to consider when choosing the right BONDERITE paint stripper

- > OEM process specification requirements
- > Metal surface
- Stripping time
- > Environmental concerns and regulations

Applications

Henkel offers a complete portfolio of solvent, hydrogen peroxide and water-based products for aircraft depaint and repaint for the following applications:

- > Airframe structure
- > Hard to reach flap and wheel well areas
- > Landing gear and major component repair applications

Types of paint strippers

- 1. Regulated Methylene Chloride:
- Fastest stripping times
- > Safe on a majority of substrates

2. Environmentally Advantaged -Peroxide:

- Medium stripping times
- > Can be used on a majority of substrates

3 Environmentally Advantaged – Acid Activated:

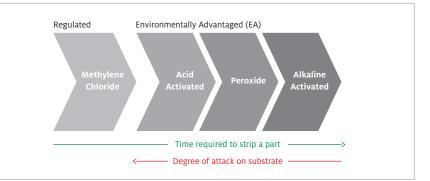
- > Faster stripping times
- > Can be used on a majority of substrates

4. Environmentally Advantaged – Alkaline Activated:

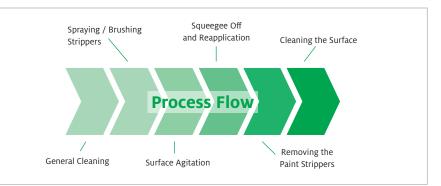
- Slower stripping times
- > Safe on a majority of substrates

Objective of Surface Preparation -Aircraft prior to paint

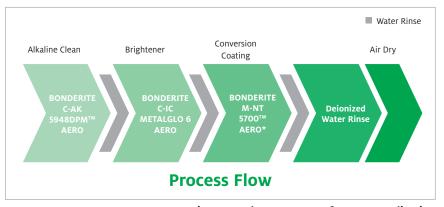
- Produce a properly prepared surface clean, residue-free
- > Ready to accept primer
- Corrosion-free
- > Properly conversion coated



Effectiveness of paint stripper types



Depaint - Paint stripping process



Repaint - Metal pretreatment for spray application

Depaint: Cleaners

Applications	Applications	•	•	•
Substrate	Aluminum	•	•	•
	Composites Material			
	Magnesium	•		•
	Mild Steel			
	Stainless Steel	•	•	•
	Titanium	•	•	•
	Ferrous	•	•	•
	Nonferrous	•	•	•
Product	Consistency	Liquid	Liquid	Liquid
Characteristics	Form	Concentrated	Concentrated	Concentrated
	Chemistry	Alkaline, Water-Based	Alkaline, Water-Based	Alkaline, Water-Based
Process	Time (Minutes)	5 – 15 Minutes	_	5 – 15 Minutes
(Immersion)	Temperature °F / °C	130 – 170°F 65 – 80°C	-	130 – 170°F 65 – 80°C
	Mix Ratio (Product : Water)	3% – 20% by value	-	3% – 20% by value
Process	Time (Minutes)	Varies as Needed	5 – 15 Minutes	Varies as Needed
(Spray)	Temperature °F / °C	Ambient	Ambient	Ambient
	Mix Ratio (Product : Water)	1 part concentrate to 9 – 30 parts water	Use as Received	3% – 30% in water
Products	New Product Name	BONDERITE C-AK 5948DPM™ AERO	BONDERITE C-AK 5948DPM™ THK AERO	BONDERITE C-AK 5948R™ AERO
	Known as	Turco [®] 5948-DPM [™]	Turco [®] 5948-DPM [™] Thick	Turco [®] 5948-R [™]
Regional	Asia Pacific	Drum, Pail	Pail	Drum, Pail
Availability & Packaging	Europe / Middle East / Africa	Drum, Pail, Tote	Pail	Drum, Pail
	Latin America	Drum, Tote	Drum	Drum Pail
	North America	Bottle Drum, Pail	Bottle, Drum, Pail	Bottle, Bulk, Drum, Pail
Description		BONDERITE C-AK 5948DPM™ AERO is an alkaline, water- based, blue concentrated compound formulated to effectively clean painted and unpainted aircraft exterior and interior surfaces when diluted with water. It is ideally suited for use on all models of jet aircraft and also designed to be used in immersion tanks for dip applications.	BONDERITE C-AK 5948DPM™ THK AERO is an environmentally advantaged, thixotropic, water-based, heavy-duty aircraft cleaner. It is formulated to effectively cling to painted and unpainted aircraft exterior and interior surfaces. It is ideally suited for use on all jets, especially in baggage bins, flap and wheel well areas, and on engines before overhaul. It can be applied as spray or mop.	BONDERITE C-AK 5948R [™] AERO is an alkaline, water- based, blue, concentrated compound formulated to effectively clean painted and unpainted aircraft exterior and interior surfaces when diluted with water. It is ideally suited for use on all large or small aircraft, and for cleaning engine parts during engine overhaul. It is also designed to be used in immersion tanks for dip applications.

Depaint: Paint Strippers

Applications	MeCl				
Applications	Acid		•		
	Peroxide			•	
	Alkaline				
	Aikaine				
Substrate	Aluminum	•	•	•	•
	Composites Material				
	Magnesium	•			
	Magnesium – Die Cast				
	Mild Steel				
	Stainless Steel	•	•	•	•
	Titanium	•	•	•	•
	Ferrous	•	•	•	•
	Nonferrous	•		•	•
Product	Consistency	Liquid	Liquid	Liquid	Liquid
Characteristics	Consistency		Ready-to-Use		·
	Form	Ready-to-Use Neutral, Methylene		Ready-to-Use Peroxide-Activated,	Ready-to-Use Peroxide-Activated,
	Chemistry	Chloride-Based	Acidic	Water-Based	Water-Based
Process	Time (Minutes)	Varies as Needed	Varies as Needed	Varies as Needed	Varies as Needed
(Spray)	Temperature °F / °C	Ambient	Ambient	Ambient	Ambient
	Mix Ratio (Product : Water)	Use as Received	Use as Received	Use as Received	Use as Received
Products	New Product Name	BONDERITE S-ST 5351™ THIN AERO	BONDERITE S-ST 6776™ LO AERO	BONDERITE S-ST 6881™ AERO	BONDERITE S-ST 6930™ AERO
	Known as	Turco [®] 5351 [™] Thin	Turco® 6776-LO	Turco [®] 6881™	Turco [®] EA Stripper 6930™
Regional	Asia Pacific	Drum, Pail	Drum, Pail, Tote	-	Drum, Pail
Availability & Packaging	Europe / Middle East / Africa	Pail	Drum, Pail	Box, Drum, Pail	Drum, Pail
	Latin America	Drum, Pail	Drum	-	Drum
	North America	Drum, Pail	Bottle, Drum, Pail	Drum, Pail	Drum, Pail
Description		BONDERITE S-ST 5351 TM THIN AERO is an amber, diphase liquid developed to remove	BONDERITE S-ST 6776 TM LO AERO environmentally advantaged paint	BONDERITE S-ST 6881 TM AERO environmentally advantaged paint remover	BONDERITE S-ST 6930 TM AERO environmentally advantaged paint remover
		epoxy, polyurethane and other catalyzed finishes from ferrous and non- ferrous surfaces. It does not contain free acidic or	remover is low-odor, thixotropic, developed for effective stripping of resistant finishes such as epoxies, epoxy primers,	is low odor, thixotropic, activated by hydrogen peroxide. It was developed for effective stripping of resistant finishes such as	is low odor, thixotropic, activated by hydrogen peroxide. It was developed for effective stripping of such resistant finishes
		alkaline constituents and is approved for use on high strength steels. It should not be used on materials that are affected by chlorinated hydrocarbons.	polyurethanes and similar catalyzed paints. It offers a significant advance in workplace safety. It does not contain methylene chloride, chlorinated solvents, phenols,	epoxies, epoxy primers, polyurethanes, and similar catalyzed aircraft paints. It offers a significant advance in paint stripper technology. It complies fully with NESHAP. It is not	as epoxies, epoxy primers, polyurethanes, and similar catalyzed aircraft paints. It offers a significant advance in paint stripper technology. It complies fully with
			chromates, ammonia or amines.	recommended for use on magnesium. It meets the corrosivity requirements of TT-R-2918 except magnesium and cadmium.	NESHAP: It meets the corrosivity requirements of TT-R 2918A. It is not recommended for use on magnesium.

Paint Strippers

Depaint: Paint Strippers

MeCl			
Acid			
Peroxide			
Alkaline	•	•	•
Aluminum	•	•	•
	•	•	
			•
Mild Steel			
Stainless Steel			•
 Titanium			•
Ferrous			•
Nonferrous			•
Consistency	Liquid	Liquid	Liquid
			Ready-to-Use
			-
Chemistry	Alkaline	Aikaime	Alkaline, Water-Based
Time (Minutes)	Varies as Needed	Varies as Needed	Varies as Needed
Temperature °F / °C	Ambient	Ambient	Ambient
Mix Ratio (Product : Water)	Use as Received	Use as Received	Use as Received
	DONDEDITE	DONDEDITE	DONDEDITE
New Product Name	S-ST 1270-5 [™] AERO	S-ST 1270-6 [™] AERO	BONDERITE S-ST 6813E [™] AERO
Known as	Turco [®] 1270-5™	Turco [®] 1270-6™	Turco [®] 6813E [™]
Asia Pacific	Pail	Pail	Drum, Pail
Europe / Middle East / Africa	Drum, Pail	-	Pail
Latin America	-	_	Drum, Pail
North America	-	Bottle, Drum, Pail	Drum, Pail
	BONDERITE S-ST 1270-5 [™] AERO is a viscous white emulsion that does not contain any of the hazardous or highly toxic components of conventional paint removers. It is free of aromatic hydrocarbons, chlorinated solvents, phenol and chromates. It is particularly effective in selective removal of toncoats from nainted	BONDERITE S-ST 1270-6 [™] AERO is a viscous white emulsion that does not contain any of the hazardous or highly toxic components of conventional paint removers. It is free of aromatic hydrocarbons, chlorinated solvents, phenol and chromates. It is particularly effective in selective removal or topcoats from painted	BONDERITE S-ST 6813E [™] AERO water-based, environmentally advantaged paint remover is a viscous, pink liquid formulated to remove multiple coats of aircraft paints such as epoxies, polyurethanes and resistant primers. It clings to vertical as well as overhead surfaces and can be used on aluminum, magnesium, cadmium
	AcidPeroxidePeroxideAlkalineAlkalineAluminumComposites MaterialMagnesium - Die CastMagnesium - Die CastMagnesium - Die CastStainless SteelTitaniumFerrousConsistencyFormChemistryTime (Minutes)Temperature °F / °CMix Ratio (Product : Water)Known asAsia PacificEurope / Middle East / AfricaLatin America	AcidPeroxidePeroxideAlkalineAlkalineAluminumComposites MaterialMagnesium – Die CastMild SteelStainless SteelTitaniumFerrousNonferrousConsistencyLiquidFormChemistryAlkalineTime (Minutes)Varies as NeededTime perature "F / "CMix Ratio (Product : Water)Now Product NameSondERITE S-ST 1270-5"M AERONordericaAsia PacificPailLatin AmericaNorth AmericaNorth AmericaSondERITE S-ST 1270-5"M AEROSi viscous white emulsion is viscous white origination or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint any of the hazardous or highly toxic components of conventional paint bard does not contain a	AcidImage: Acid and a set of the set of t

Repaint: Brighteners

Applications	Fluoride	•		
	Non-Fluoride		•	•
Substrate	Aluminum	•	•	•
Substrate	Composites Material			
	Magnesium			
	Mild Steel			
	 Stainless Steel			
	 Titanium			
	Ferrous			
	Nonferrous			
Due du et	Consistensy	Liquid	Liquid	Liquid
Product Characteristics	Consistency Form	Liquid	Liquid	Liquid
	Form			
	Chemistry	Acid, Solvent	Acid, Solvent	Acid, Solvent
Process (Immersion)	Time (Minutes)	-	-	-
(minersion)	Temperature °F / °C	-	-	-
	Mix Ratio (Product : Water)	-	-	_
Process	Time (Minutes)	Varies as Needed	-	-
(Spray)	Temperature °F / °C	Ambient – 120°F Ambient – 49°C	-	_
	Mix Ratio (Product : Water)	Full strength or 1:1	Full strength or 1:2	Full strength or 1:2
Products	New Product Name	BONDERITE C-IC METALGLO 6 AERO	BONDERITE C-IC METALGLO FF RTU AERO	BONDERITE C-IC METALGLO FF AERO
	Known as	Turco® Metal Glo #6	Turco [®] Metal Glo FF RTU	Turco® Metal Glo FF (Concentrate)
Regional	Asia Pacific	Pail	_	_
Availability & Packaging	Europe / Middle East / Africa	Pail	-	-
Tackaging	Latin America	Drum	_	_
	North America	Bottle, Drum	Drum, Tote	Bottle, Bulk
Description		BONDERITE C-IC METALGLO 6 AERO is a nonflammable triacid, detergent, solvent-based cleaner, brightener, deoxidizer and prepaint conditioner for aluminum. It is a viscous liquid used for the removal of oxides and corrosion from aircraft and aluminum surfaces. It produces a chemically clean, water-break-free and streak-free surface when used according to directions.	BONDERITE C-IC METALGLO FF RTU AERO is a nonflammable, non-fluoride, acid-based cleaner, brightener, deoxidizer and prepaint conditioner for aluminum. It contains viscosity builders that allow for added contact time, enabling this product to remove corrosion products from horizontal and vertical surfaces. It produces a chemically clean, water-break-free and streak-free surface. It can be applied as spray or brush.	BONDERITE C-IC METALGLO FF AERO is a nonflammable, non-fluoride, acid-based cleaner, brightener, deoxidizer and prepaint conditioner for aluminum. It contains viscosity builders that allow for added contact time, enabling this product to remove corrosion products from horizontal and vertical surfaces. It produces a chemically clean, water-break-free and streak-free surface. It can be applied as spray or brush.



Repaint: Conversion Coatings

Applications	Chrome 6 (MIL-SPEC)	•	•			
	Chrome 3					
	Non-Chrome			•	•	
Substrate	Aluminum	•	•	•	•	
	Composites Material					
	Magnesium	•	•	•	•	
	Magnesium – Die Cast	•	•			
	Mild Steel					
	Stainless Steel					
	Titanium	•	•	•	•	
	Ferrous					
	Nonferrous					
Product	Consistency	Liquid	Liquid	Liquid	Liquid	
Characteristics	Form	Concentrated	Ready-to-Use	Concentrated	Ready-to-Use	
	Chemistry	Trivalent Chrome	Trivalent Chrome	Acid	Acid	
Process	Time (Minutes)	1.5 – 3 Minutes	1.5 – 3 Minutes	30 Seconds – 5 Minutes	1 – 5 Minutes	
(Spray)	Temperature (°F / °C)	75 – 110°F 24 – 42°C	70 – 100°F 21 – 38°C	Ambient	Ambient	
	Mix Ratio (Product : Water)	3 – 10% by Volume	Used as Received	1 - 8%	Used as Received	
Products	New Product Name	BONDERITE M-CR T5900™ AERO	BONDERITE M-CR T5900™ RTU AERO	BONDERITE M-NT 5200™ AERO	BONDERITE M-NT 5700™ AERO	
	Known as	Alodine [®] T 5900 [®]	Alodine [®] T 5900 [®] RTU	Alodine® 5200™ Makeup	Alodine [®] 5700 [™]	
Regional	Asia Pacific	-	-	_	_	
Availability & Packaging	Europe / Middle East / Africa	-	-	-	Pail	
	Latin America	-	-	_	-	
	North America	Bottle, Drum, Pail	Drum, Pail, Tote	Bottle, Drum, Pail	Bottle, Case, Drum, Pail	
Description		BONDERITE M-CR T5900 TM AERO is a complex trivalent chromium conversion coating formulated for treating aluminum and its alloys, metals coated with IVD aluminum, magnesium, titanium and zinc surfaces. This product is formulated as a ready-to-use material for manual spray applications. It provides spray resistance and also serves as an excellent base for organic finishes and adhesives.	BONDERITE M-CR T5900 TM RTU AERO is a complex trivalent chromium conversion coating formulated for treating aluminum and its alloys, metals coated with IVD aluminum, magnesium, titanium and zinc surfaces. This product is formulated as a ready-to-use material for manual spray applications. It provides spray resistance and also serves as an excellent base for organic finishes and adhesives.	BONDERITE M-NT 5200 [™] AERO is a chromium-free product specifically formulated for treating aluminum and its alloys. It provides an excellent base for bonding of adhesives and organic finishes. It can be applied as spray or immersion.	BONDERITE M-NT 5700 [™] AERO is a chromium-free product specifically formulated for treating aluminum and its alloys. It provides an excellent base for bonding of adhesives and organic finishes. It can be applied as spray or immersion.	

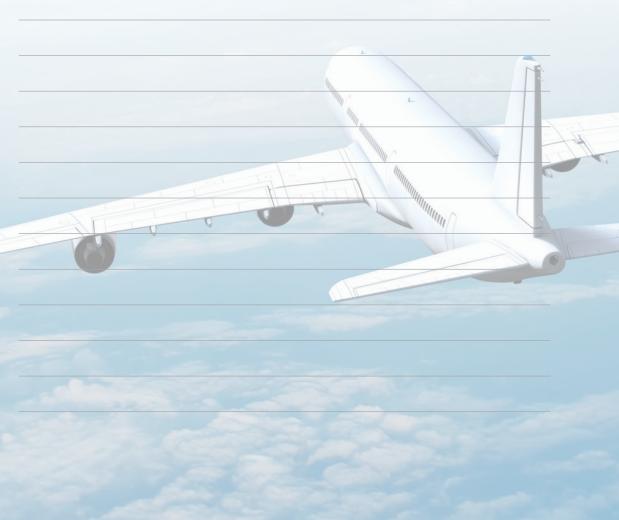
	Notes
•	
•	
Liquid	
Ready-to-Use	
Chromate	
1 – 5 Minutes	
70 – 100°F 21 – 38°C	
Used as Received	
BONDERITE	
M-CR 600RTU™ AERO	Ť.
Alodine [®] 600 [™] RTU	t .
Pail	9 10
-	1
Pail	0
Bottle, Drum, Pail, Tote	
BONDERITE	-
M-CR 600RTU TM AERO is a ready-to-use liquid product which produces	
a chromate conversion	
coating on aluminum and its alloys. The coating	
provides excellent protection for unpainted aluminum and bonds paint	
well.	

Repaint: Conversion Coatings Touch Up

Applications	Chrome 6 (MIL-SPEC)			•	•	
	Chrome 3		•			
	Adhesion Promoter	•				
Substrate	Aluminum	•	•	•		
	Composites Material					
	Magnesium					
	Magnesium – Die Cast				•	
	Mild Steel					
	Stainless Steel					
	Titanium					
	Ferrous					
	Nonferrous					
Product	Consistency	Liquid	Liquid	Liquid	Liquid	
Characteristics	Form	Two-Part Kit	Ready-to-Use	Ready-to-Use	Ready-to-Use	
	Chemistry	Non-chrome, Organic	Trivalent Chrome	Chromate	Chromate	
Process		Davia Diaca				
(Spray)	Time (Minutes)	Dry-in-Place	-	-	Until Dry	
	Temperature (°F / °C)	Ambient	-	-	Ambient	
	Mix Ratio (Product : Water)	Used as Received	-	-	Used as Received	
Products	New Product Name	BONDERITE M-NT 8800™ AERO	BONDERITE M-CR 871™ AERO	BONDERITE M-CR 1132™ AERO	BONDERITE M-CR MAGNESIUM AERO	
	Known as	Alodine [®] 8800™	Alodine® 871™ Touch-N-Prep® Coating	Alodine® 1132™ Touch-N-Prep® Coating	Alodine® Magnesium Treatment Kit	
Regional	Asia Pacific	-	Pen	Pen	Kit	
Availability & Packaging	Europe / Middle East / Africa	-	Pen	Pen	_	
	Latin America	-	-	Pen	_	
	North America	Pail	Pen	Pen	Kit, Drum	
Description		BONDERITE M-NT 8800 [™] AERO is a sol-gel coating replacement specifically formulated for increasing adhesion to aluminum and titanium alloys. This product is suitable for spray, brush, and wipe-on applications. The coating produced provides an excellent base for organic finishes and surface	BONDERITE M-CR 871 TM AERO is a trichrome dry-in- place conversion coating designed for use on aluminum and its alloys. The applicator used to deliver this product provides an easy and safe method of repairing bare areas of aluminum surfaces. Its proper use reduces worker contact	BONDERITE M-CR 1132 [™] AERO is designed to save labor, material and time when applying a dry-in place hexachrome conversion coating for touch-up applications. Its proper use also reduces worker contact to chromated solution and decreases wastewater such as rinse water generated from a	BONDERITE M-CR MAGNESIUM AERO contains products formulated for treating magnesium alloys to produce a chromate conversion coating conforming to SAE AMS-M-3171, Type VI. The application method conforms to requirements in NAVAIR 01-1A-509 and is meant primarily for	

Notes

	•			
]		
	•			
		_		
	Liquid			
	Ready-to-Use			
	Chromate			
]		
	1 – 5 Minutes			
	Ambient			
M	Ambient			
	Ambient Used as Received BONDERITE			
	Ambient Used as Received BONDERITE -CR 120 TM BRUSH AERO			
	Ambient Used as Received BONDERITE -CR 120 TM BRUSH AERO			
	Ambient Used as Received BONDERITE -CR 120 TM BRUSH AERO			
	Ambient Used as Received BONDERITE CR 120 TM BRUSH AERO Nodine® 120 TM Brush Kit			



For proven engine maintenance solutions, trust Henkel's engine overhaul and compressor washer products:

BONDERITE engine cleaners

Engine maintenance: a matter of safety

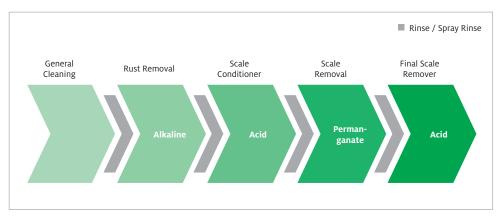
In the interest of safety, many external considerations from regional regulatory agencies to engine OEMs / shop requirements contribute to and determine the appropriate engine maintenance protocol. Engine parts need to be professionally and thoroughly cleaned for effective Non-Destructive Testing (NDT) inspection and corresponding engine overhaul or parts replacement activities.

No compromises: BONDERITE engine cleaners

Providing one of the broadest portfolios in the industry, BONDERITE engine overhaul and compressor washers meet major OEM process specifications while being available globally. Whether you require an on-wing or off-wing solution, BONDERITE removes metal oxide scales, sulfadations and carbonaceous material. BONDERITE is highly cost-effective and provides reliable results – day by day.

Why choose BONDERITE engine cleaners?

- > Meet many OEM process requirements
- > Cost-effective with excellent rust and contaminant removal properties
- > Efficient scale removal properties
- > Total engine overhaul package solution



Engine Overhaul Process

BONDERITE engine cleaners: Facts at a glance

Key factors to consider when choosing the right BONDERITE engine cleaner

- > Meets OEM qualified process requirements
- > Metal substrate
- Soil types (organic or inorganic)
- > Environmental concerns and regulations
- Disposal system compatibility

Engine cleaning sections

> On-wing cleaning - compressor washers

- > Bath life
- > Rinse conditions (procedures, steps, water availability)
- Transfer times
- > Special purposes applications like field repair
- > Off-wing cleaning engine overhaul
 - » Cold section
 - » Hot section

Key factors influencing the cleaning performance

- Product concentration
- Temperature
- > Time
- > Product agitation

- > Metal surface conditions
- > Contamination and age of bathing solution
- Rinsing
- Engine Cleaning Solutions (ST) Structural Adhesives (AA) Composite Materials (M&R) Composite Fan Composite Outlet Guide Vanes Containment Case Composite Low Pressure Compressor Composite Fan Blades Cleaning of Compressor's & Turbine's Blades Titanium Leading Bonding to Blades Abradable Fan Track Liner Low Density Fillers for Ice Repellent Liners Acoustic Fan Track Liner

Solution selling - Engine overhaul surface treatment and structural adhesives

Engine Maintenance: Engine Overhaul

Applications	Rust Remover	•	•				
	Permanganate						
	Scale conditioner					•	
	Rinse Aid						
	Wax Remover						
Substrate	Aluminum						
	Composites Material						
	Magnesium	•	•				
	Magnesium – Die Cast						
	Mild Steel						
	Stainless Steel	•	•			•	
	Titanium	•	•			•	
	Ferrous	•	•			•	
	Nonferrous						
Product	Consistency	Powder	Liquid	Liq	uid	Liquid	
Characteristics	Form	Concentrated	Concentrated	Two-P	art Kit	Concentrated	
	Chemistry	Alkaline	Alkaline	Alkaline, Pe	rmanganate	Acid-Activated	
Process (Immersion)	Time (Minutes)	15 – 30 Minutes	General: 15 – 60 Minutes Titanium: 15 – 30 Minutes	30 - 60	Minutes	30 Minutes	
	Temperature °F / °C	General: 185 – 205°F 90 – 95°C Titanium: 168°F (max.) 75°C (max.)	General: 176 – 203°F 80 – 95°C Titanium: 158 – 167°F 70 – 75°C		203°F 95°C	176 – 194°F 80 – 90°C	
	Mix Ratio (Product : Water)	75 – 100% by volume	General: 50 – 75% in water Titanium: 12 – 15% with water		35% olume	20 – 30% by volume in water	
Products	New Product Name	BONDERITE C-AK 4181™ AERO	BONDERITE C-AK 4181™ L AERO		DERITE 3™ L AERO	BONDERITE C-IC SCALEGON 5 AERO	
	Known as	Turco [®] 4181™	Turco [®] 4181™ L	Turco® 4338™ L Part 1	Turco® 4338™ L Part 2	Turco® Scale Gon #5	
Regional	Asia Pacific	Drum, Pail	Drum, Pail	Drum, Pail	Drum, Pail	Drum, Pail	
Availability & Packaging	Europe / Middle East / Africa	Pail	Drum, Pail, Tote	Drum, Pail, Tote	Drum, Pail, Tote	Drum, Pail	
	Latin America	-	-	-	Drum	-	
	North America	_	Bottle, Bulk, Drum	Bottle, Drum	Bottle, Drum	Drum	
Description		BONDERITE C-AK 4181 TM AERO is a flowing granular-free product formulated to simultaneously strip paint, dissolve rust, and light heat from jet engine parts. It is used during routine maintenance. It removes carbonatious deposits, phosphate coatings and Semetal W as well as light oils and unwanted lubricant residues.	BONDERITE C-AK 4181 [™] L AERO is an amber, liquid compound formulated to remove rust, paints, lube oils, drawing pastes, cutting oils and protective oils from ferrous alloys by immersion methods.	BONDERITE C-AK 4338 ^{rm} is a liquid alk permanganat developed sp for jet engine modifies high heat scale by changing the of the oxide c to one that is conditioned f of chemical r subsequent p steps.	aline e formulation ecifically cleaning. It temperature chemically structure leposit properly or ease emoval in	BONDERITE C-IC SCALEGON 5 AERO is an acid activated yellow liquid used in the BONDERITE Jet Engine Process to condition and remove high temperature scale from jet engine parts.	



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		•	
Liquid	Liquid	Liquid	
Concentrated	Concentrated	Ready-to-Use	
Mildly Acidic	Alkaline	Solvent	
30 – 60 Minutes	Varies as needed	Until wax is completely softened and dissolved	
140 – 176°F 60 – 85°C	Ambient – 204°F Ambient – 95°C	50 – 68°F 10 – 20°C	
60 – 85°C 20 – 30%	Ambient – 95°C		
60 – 85°C 20 – 30% by volume in water BONDERITE	Ambient – 95°C 0.7 – 1.75% by value BONDERITE	10 – 20°C – BONDERITE	
60 – 85°C 20 – 30% by volume in water BONDERITE C-IC SCALEGON 7 AERO	Ambient – 95°C 0.7 – 1.75% by value BONDERITE L-GP RUST BLOC AERO	10 – 20°C – BONDERITE C-MC 6802™ AERO	
60 – 85°C 20 – 30% by volume in water BONDERITE C-IC SCALEGON 7 AERO	Ambient – 95°C 0.7 – 1.75% by value BONDERITE L-GP RUST BLOC AERO Turco® Rust Bloc	10 – 20°С – ВОNDERITE С-MC 6802 ^{тм} АЕКО Тигсо® 6802 ^{тм}	
60 - 85°C 20 - 30% by volume in water BONDERITE c-IC SCALEGON 7 AERO Turco® Scale Gon #7 -	Ambient – 95°C 0.7 – 1.75% by value BONDERITE L-GP RUST BLOC AERO Turco® Rust Bloc	10 – 20°C – BONDERITE C-MC 6802TM AERO Turco [®] 6802 TM	
60 - 85°C 20 - 30% by volume in water BONDERITE c-IC SCALEGON 7 AERO Turco® Scale Gon #7 -	Ambient – 95°C 0.7 – 1.75% by value BONDERITE L-GP RUST BLOC AERO Turco® Rust Bloc Pail –	10 – 20°C – BONDERITE C-MC 6802™ AERO Turco® 6802™ Drum Pail, Tot	
60 - 85°C 20 - 30% by volume in water BONDERITE c-IC SCALEGON 7 AERO Turco® Scale Gon #7 -	Ambient – 95°C 0.7 – 1.75% by value BONDERITE L-GP RUST BLOC AERO TUrco® Rust Bloc Pail - Pail	10 – 20°C _ BONDERITE C-MC 6802™ AERO Turco® 6802™ Drum Pail, Tot Drum	

Engine Maintenance: Compressor Washers

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Applications	Compressor Cleaners		•	•
Substrate	Aluminum	•	•	•
	Composites Material	•	•	•
	Magnesium	•	•	•
	Magnesium – Die Cast	•	•	•
	Mild Steel	•	•	•
	Stainless Steel	•	•	•
	Titanium	•	•	•
	Ferrous	•	•	•
	Nonferrous	•	•	•
Product	Consistency	Liquid	Liquid	Liquid
Characteristics	Form	Concentrated	Ready-to-Use	Concentrated
	Chemistry	Solvent	Alkaline	Alkaline
Process	Time (Minutes)	Varies as Needed	Varies as Needed	Varies as Needed
(Spray)	Temperature °F / °C	Ambient	Ambient	Ambient
	Mix Ratio (Product : Water)	1 : 4 Ratio	Used as Received	1 : 4 Ratio
Products	New Product Name	BONDERITE C-MC 5884™ AERO	BONDERITE C-MC 6783-10™ AERO	BONDERITE C-MC 6783-50™ AERO
	Known as	Turco [®] 5884™	Turco [®] 6783-10 [™]	Turco [®] 6783-50™
Regional	Asia Pacific	Drum, Pail	Pail	Drum, Pail
Availability & Packaging	Europe / Middle East / Africa	Drum, Pail	-	Pail
	Latin America	Pail	Drum	Drum, Pail
	North America	Drum, Pail	Drum, Pail	Drum, Pail
Description		BONDERITE C-MC 5884 TM AERO is a concentrated liquid cleaner which effectively removes oil, salt and solid deposits from compressor blades, guide vanes and rotors of in-service jet engines. Periodic cleaning of these components is necessary to avoid power loss, abnormal temperature increases and increased fuel consumption.	BONDERITE C-MC 6783-10 [™] AERO is an aqueous compressor cleaner which effectively removes oil, salt and solid deposits from compressor blades, guide vanes and rotors of in- service turbine engines. Periodic cleaning of these components is necessary to avoid power loss, abnormal temperature increases, increased fuel consumption and excessive NOx emissions. It is supplied in a ready-to- use liquid form.	BONDERITE C-MC 6783-50 [™] AERO is a concentrated aqueous compressor cleaner which effectively removes oil, salt and solid deposits from compressor blades, guide vanes and rotors of in-service turbine engines. It is used at 20 percent by volume in distilled, demineralized or good drinking quality water. For cold weather (below 32°F / 0°C) add 20 percent by volume isopropanol, ethanol or glycol.

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BONDERITE Nomenclature		BONDERITE No	menclature	
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BONDERITE C-AK	Alkaline Cleaner	BONDERITE M-CR		Chromating
BONDERITE C-IC	Acid Cleaner	BONDERITE M-NT		New Generation
BONDERITE C-MC	Maintenance Cleaner	BONDERITE S-xx		Specialities
BONDERITE L-XX	Lubricants	BONDERITE S-MA		Maskants
BONDERITE L-GP	General-Purpose	BONDERITE S-ST		Paint Stripper

L@CTITE. BONDERITE. TECHNOMELT. TEROSON. AQUENCE.

NORTH AMERICA

Henkel Corporation Aerospace P. O. BOX 312 2850 Willow Pass Road Bay Point, CA 94565 United States Tel.: +1.925.458.8000 Fax: +1.925.458.8030

LATIN AMERICA

Henkel Brazil Ltda Rua Karl Huller, 136 Diadema – SP Brazil 09941-410 Tel.: +55.11.3205.8955

Henkel Mexicana

Boulevard Magnocentro No.8 Piso 2 Centro Urbano Interlomas 52760 Huixquilucan Edo. De México Tel.: +52.55.33.00.30.00

EUROPE

Henkel Nederland B.V. Brugwal 11 3432 NZ Nieuwegein Netherlands Tel.: +31.30.6073.911 Fax: +31.30.6054.457

Henkel AG & Co. KGaA

Aerospace Henkelstraße 67 40589 Düsseldorf Germany Tel.: +49.211.797.0

ASIA-PACIFIC

Henkel (China) Co. Ltd No. 928 Zhang Heng Road Pu Dong, 201203 Shanghai China Tel.: +86.21.2891.8882 Fax: +86.21.6360.6070

Henkel Japan Ltd., Henkel Technology Center

27-7 Shin Isogo-cho, Isogo-ku Yokohama-shi Kanagawa 235-0017 Japan Tel.: +81.45.758.1800 Fax: +81.45.758.1851

Henkel Australia Pty. Ltd., Kilsyth

135-141 Canterbury Road 3137 Kilsyth, VIC Australia Tel.: +61.3.9724.6444 Fax: +61.3.9728.5877

List of authorized distributors: www.henkel-adhesives.com/aerospace-distributor Henkel Solutions for the Aerospace Industry: www.henkel-adhesives.com/aerospace

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