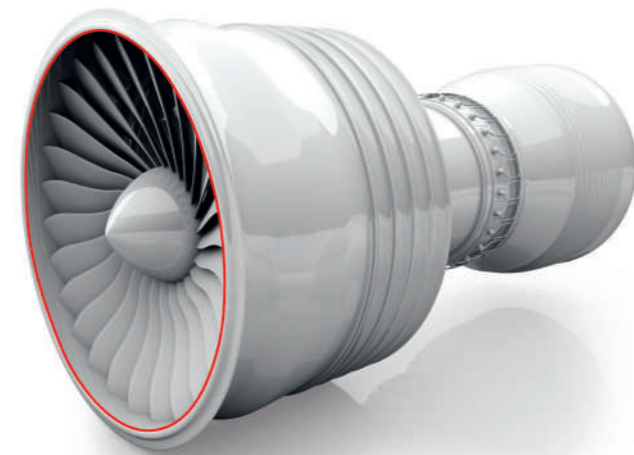


Our complete global service goes above and beyond, with high quality products that are always available.

Henkel is one of the world's largest suppliers of chemicals to the aviation industry. Henkel has led in the development of cleaners, paint strippers and carbon removers for use in aviation manufacturing, maintenance and overhaul. Henkel provides a full line of environmentally advantaged products, including paint strippers without phenol, chromate, or methylene chloride. BONDERITE branded products are available worldwide through a network of subsidiaries, licensees, and distributors.

- Acid and Alkaline Cleaners
- Emulsion Cleaners
- Etchants and Deoxidizers
- Chemical Milling Products
- Aircraft Exteriors Cleaners
- Non-Chlorinated Solvents
- Conversion Coatings
- Environmentally Advantaged™ Paint Strippers



Approvals

General Electric
Honeywell
Military – Mil-PRF-85704C
Pratt & Whitney
Rolls Royce
Snecma

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BONDERITE

Jet Engine Cleaning Technologies from Henkel



Henkel

Jet Engine Cleaning

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

BONDERITE engine cleaners

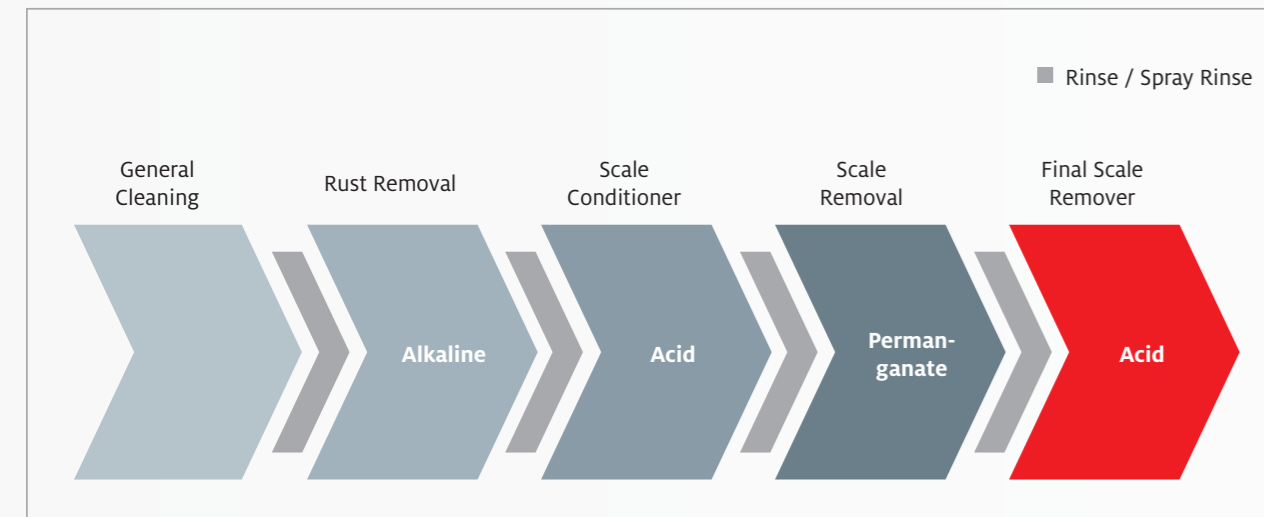
Engine maintenance: a matter of safety

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

Jet Engine Cleaning Product Chart

Product Name	Description	Purpose	Suitability	Features	Application
ON-LINE/OFF-LINE CLEANER					
BONDERITE C-MC 6783-10 AERO (Ready-to-Use)	Water-Based	Removes oil, salt and solid deposits from compressor blades, guide vanes and rotors of in-service jet engines.	Meets requirements of low chloride, sulfur phosphorus and potassium	<ul style="list-style-type: none"> • Environmentally Advantaged • Non-flammable, non-toxic and non-corrosive 	RTU (Ready-to-Use)
BONDERITE C-MC 6783-50 AERO					Dilution Ratio 1:4. Preferred dilution with distilled or demineralized water
BONDERITE C-MC 5884	Solvent-Based	Removes oil, salt and solid deposits from compressor blades, guide vanes and rotors of in-service jet engines.	Very low in phenol, chloride and sulfur in addition to being ash-free	<ul style="list-style-type: none"> • Ideal for hydraulic fluids and lubricants 	Dilution Ratio 1:1-1:4. Preferred dilution with distilled or demineralized water
OVERHAUL CLEANING PROCESS: COLD SECTION					
BONDERITE C-AK LS NP-LT AERO	Alkaline Degreaser	Removes shop soil, lube oils, light drawing oils and drawing waxes from ferrous, aluminum, copper and titanium alloys in addition to most magnesium alloys, zinc and cadmium.	Contains less than 1 ppm lead, silver, zinc, tin, copper and cadmium in addition to containing less than 50 ppm halogens	<ul style="list-style-type: none"> • Does not contain free caustic • Free rinsing with room temperature water 	Spray Application: 3-10% by Volume Water 90-190°F (32-88°C) Operating Pressure: 20-30 psi Immersion Application: 5-25% by Volume Water 90-190°F (32-88°C)
BONDERITE C-AK 5948-DPM AERO	Heavy Duty Alkaline Cleaner	Removes soils, such as synthetic oil films, grease, carbon and exhaust residues, from aircraft engine components, exterior surfaces, landing gears, wheel wells, flaps, etc.	Does not contain phosphates, chromates or butyl cellosolve	<ul style="list-style-type: none"> • Nonstaining and nonstreaking to aluminum • Noncrazing to plexiglass • Ideal for exterior and interior cleaning, as well as parts cleaning • Free rinsing 	Spray and Manual Application: Dilution Ratio: 1:9-1:30 Immersion Application: Dilution Ratio 1:3-1:20 • 140-176°F (60-80°C)
BONDERITE S-ST 5668 AERO	Hot Tank Paint Stripper	Removes resistant coatings, such as aluminized silicones, polyurethanes, acrylics, epoxies and chromated primers.	Does not contain phenols, chromate, chlorinated solvents or acids	<ul style="list-style-type: none"> • Supplied with a built-in, non-aqueous chemical seal which retards evaporation and helps minimize drag out losses • Easily rinsed from parts with steam or high pressure water 	Immersion Application: RTU (Ready-to-Use) 158-176°F (70-80°C)
BONDERITE C-AK 4181L AERO	Alkaline Rust Removers	Removes rust, paints, greases and carbon residues from ferrous and chrome nickel alloys, as well as titanium, when used as directed. Not for use on aluminum.	Does not contain phenols, chromate or solvents	<ul style="list-style-type: none"> • Developed for use on precision surfaces where dimensional change and hydrogen embrittlement must be avoided 	General Cleaning: 50-75% by volume Water: 185-205°F (85-95°C) Titanium Cleaning: 12-20% by volume Water: 168°F (75°C) Max.
OVERHAUL CLEANING PROCESS: HOT SECTION					
BONDERITE C-AK 5948-DPM AERO	Heavy Duty Alkaline Cleaner	Removes soils, such as synthetic oil films, grease, carbon and exhaust residues, from aircraft exterior surfaces, landing gears, wheel wells, flaps, etc.	Does not contain phosphates, chromates or butyl cellosolve	<ul style="list-style-type: none"> • Nonstaining and nonstreaking to aluminum • Noncrazing to plexiglass • Ideal for exterior and interior cleaning, as well as parts cleaning • Free rinsing 	Spray and Manual Application: Dilution Ratio 1:9-1:30 Parts Water Immersion Application: Dilution Ratio 1:3-1:20 Parts Water 140-176°F (60-80°C)
BONDERITE C-AK 5948-R	Heavy Duty Alkaline Cleaner	Removes soils, such as synthetic oil films, grease, carbon and exhaust residues, from aircraft engine components, exterior surfaces, landing gears, wheel wells, flaps, etc.	Does not contain phosphate or chromates	<ul style="list-style-type: none"> • Nonstaining and nonstreaking to aluminum • Noncrazing to plexiglass • Ideal for exterior and interior cleaning, as well as parts cleaning • Free rinsing 	General Cleaning Applications: 3-10% by Volume Water Immersion Applications: Dilution Ratio 1:3-1:20 • 140-176°F (60-80°C)
BONDERITE C-AK 4181-GL AERO	Alkaline Degreaser and Rust Remover	Removes rust, paints, lube oils, drawing pastes, cutting oils and protective oils from ferrous alloys, magnesium alloys, stainless steels, brass, bronze or Monel alloys when used as directed. It can be used on titanium alloys when used as directed.	A global product that does not contain phenols, chromate or solvents	<ul style="list-style-type: none"> • Developed for use on precision surfaces where dimensional change and hydrogen embrittlement must be avoided 	General Cleaning or Rust Removal: 24-35% by Volume Water Optional - BONDERITE 4181-GL Additive • 6 to 9 fl. oz. 180-199°F (82-93°C) Titanium and Ti Alloys: 7-10% by Volume of Water Optional - BONDERITE 4181-GL Additive • 2.3 to 2.9 fl. oz. per 100 GL Max. 180°F (82°C)
BONDERITE C-IC SCALEGON 5 AERO	Mildly Acidic Scale Conditioner	High temperature scale remover designed to facilitate non-destructive testing (penetrant) and reconditioning of parts.	Contains no EDTA	<ul style="list-style-type: none"> • Wide, safe operating range 	Immersion Application: 20-30%, by Volume Water 180-195°F (80-90°C)
BONDERITE C-IC SCALEGON 7 AERO	Mildly Acidic Scale Conditioner	High temperature scale remover designed to facilitate non-destructive testing (penetrant) and reconditioning of parts.	Contains no EDTA	<ul style="list-style-type: none"> • Especially suited for the treatment of CrNi and Ni alloys such as nimonics and ferritic chromium steels • Not temperature critical – wide, safe operating range – although optimum results are obtained with temperatures between 140-185°F (60-85°C) 	Immersion Application: 5.3-7.9% by Volume Water 150-185°F (65-85°C)
BONDERITE C-AK 4338-L™ AERO	Alkaline Permanganate Cleaner	Liquid alkaline permanganate formulation developed specifically for jet engine high temperature heat scale by chemically changing the structure of the oxide deposit to one that is properly conditioned for ease of chemical removal.	Supplied as a liquid concentrate form that provides much greater safety and ease of handling when compared to dry powdered products, both for tank make-up and for tank maintenance	<ul style="list-style-type: none"> • Suited for use on all ferrous and high temperature alloys over a wide range of concentrations to handle various types of scale • Not to be used on reactive alloys such as aluminum • Superior tank life compared to powder permanganate products 	Immersion Application: 15-25% by Volume Water 176-203°F (80-95°C)
BONDERITE C-IC 4409 GL AERO	Inhibited Acidic Scale Remover	Liquid designed for use on ferrous and nonferrous alloys by immersion, spray and hand wipe methods.	Supplied as a liquid concentrate for easy handling to provide an additional benefit of allowing use at elevated temperatures, improving scale removal time and efficiency	<ul style="list-style-type: none"> • Specifically designed for use in overhaul of jet engine components • Cleaner can be diluted to meet specific cleaning/deoxidizing requirements • Free rinsing 	Immersion Application: 25-50% (ambient tank cleaning) 5-10% (hot tank cleaning) • Ambient to 150°F (65°C)
BONDERITE L-GP Rust Bloc	Rust Inhibitor	A rinse additive that acts as a corrosion preventative.	Free of chromate, nitrite, toxic fumes, vapors, oils, HAPs and VOCs	<ul style="list-style-type: none"> • Long tank life 	Rinse Inhibitor: 0.7-1% by Volume Water • Ambient to 200°F (93°C) Spray Washer: 2-5% by Volume Water • Ambient to 200°F (93°C) 10-60 psi Immersion: 10-20% by Volume Water • Ambient to 200°F (93°C)