



Technical Data Sheet

BIOACT™ 280 Wax Remover

Product Description

BIOACT 280 Wax Remover is a semi-aqueous cleaner designed to quickly dissolve paraffinic, microcrystalline plating wax and thermoplastic fixturing waxes. It also effectively removes pitches, greases, buffing compounds, metalworking fluids and lubricating oils. BIOACT 280 is a suitable replacement for trichloroethylene (TCE), HCFC-141b, HCFC-225, perchloroethylene (PCE), methylene chloride (MeCl), n-propyl bromide (*n*PB) and petroleum-derived solvents for dewaxing operations.

BIOACT 280 is safe for use with ferrous and non-ferrous alloys such as aluminum, copper and copper alloys, magnesium, nickel, steel, stainless steel, titanium and zinc. It is also compatible with many polymeric substrates and elastomers.

Features and Benefits

- Removes High Melting Soils
- Material Compatibility
- Replaces Vapor Degreasing
- Up to 40% Wax Loading
- Replaces Hot Oil
- Very Low Odor
- Non-Corrosive
- Aerospace Approved
- Low Toxicity

Properties

Odor	Very Low
Flash Point	326.3°F (163.5°C)
Specific Gravity (25 °C)	0.87
Vapor Pressure (20 °C)	<0.002 mmHg
Viscosity (@ 25°C)	7.3 cps
Kauri-Butanol (KB) Value	90

Soils Removed

- Coolants
- Paraffinic Wax
- Fixturing Waxes
- Pitches
- Greases
- Plating Waxes
- Hydraulic Fluids
- Polishing Compounds
- Microcrystalline Wax
- Buffing Compounds

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Application Equipment

Suitable for use in a variety of commercially available cleaning equipment including heated immersion tanks.

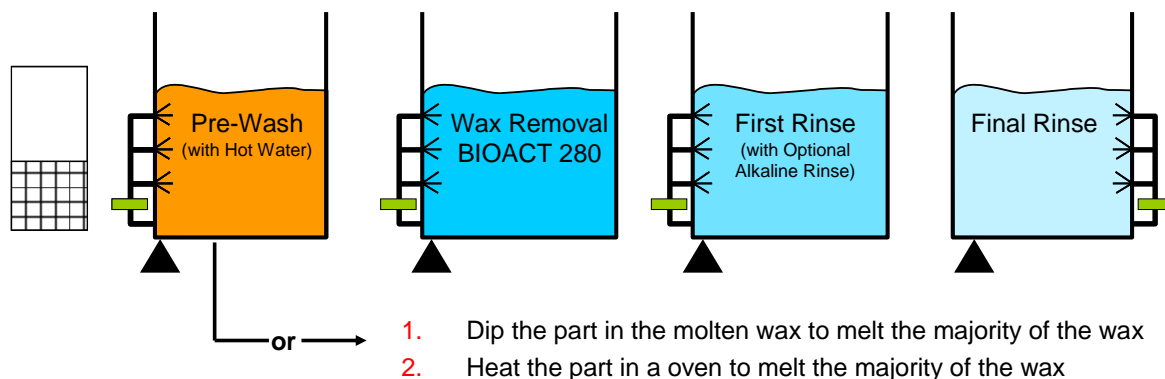
Use Instructions

The BIOACT 280 wax removal process consists of the following basic steps: wax removal, water or alkaline rinses and drying (*optional*). Figures below depict common immersion equipment configurations designed for wax removal.

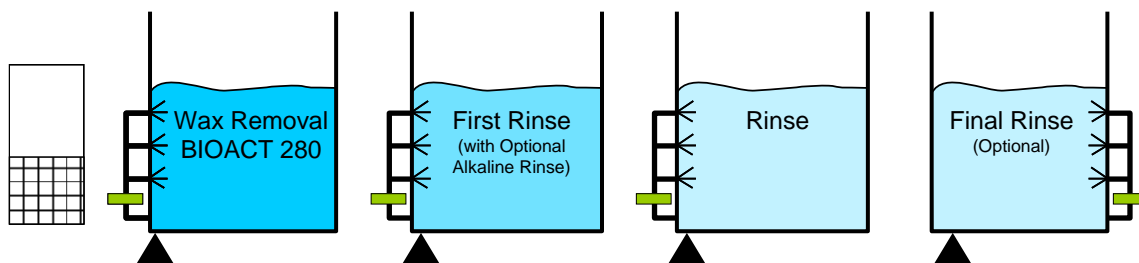
Add BIOACT 280 at full concentration (100%) to the wash tank reservoir. Typical operating temperatures for wax removal range between 180-205°F (82-96°C). Lower temperatures may be used for oil and grease removal. Mechanical agitation is recommended.

Remove BIOACT 280 from the substrate surface with a heated water rinse 160-180 °F (71-88 °C). Or, add an alkaline cleaner such as CleanSafe 787C or CleanSafe 686 to the first rinse to extend the bath life of BIOACT 280 and improve rinsing. Mechanical agitation is recommended. Most systems incorporate two or three successive rinses.

Wax Removal with Pre-Wash Options for Gross Wax Removal



Wax Removal with One BIOACT 280 Tank



Please refer to the BIOACT 280 Operators Manual or complete operational procedural details.

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Testing Method – Wax Load Analysis

Materials

- 4 oz. open mouth jars with lids
- Acetone
- Analytical balance
- Oven
- Subzero chilling bath
- Watch Glass
- Vacuum filtration apparatus
 - Buchner funnel
 - Type 2, 5, or 6 Whatman filter papers
 - Side-arm Erlenmeyer flask

Procedure

1. Obtain a bath sample from a well-agitated wash sump, place in a clean 4 oz jar, and close with a lid. Inspect the bath sample obtained. If the wax is falling out of solution, heat the sample gently (or no greater than the operating temperature of the process) to obtain a homogenous (or one phase) mixture.
2. Place 95.0 grams of acetone into a clean 4 oz. jar and add 5.0 grams of the bath sample. Seal the jar with a lid and shake gently.
3. Place in a glycol/water chilling bath to -24°C/-11°F for five to ten minutes.
4. While the sample is chilling, set up the vacuum filtration apparatus. Weigh the filter paper before filtration on an analytical balance.
5. Inspect the sample again. If wax is present, the sample should have large flakes within in the solution. **Note:** DO NOT shake or agitate the sample.
6. Filter the sample while cold using the vacuum filtration apparatus.
7. Remove the filter paper gently from the Buchner funnel without removing the wax residues on the surface of the paper.
8. Place the filter paper on the watch glass and dry in an oven at 110°C/230°F for 2 minutes. Remove from the oven and allow the sample to cool to room temperature.
9. Reweigh the filter paper on the analytical balance to determine the amount of wax material filtered.
10. Calculate wax content by:

$$\text{Wax loading (wt\%)} = \frac{(\text{Mass of filter paper after filtration} - \text{Mass of filter paper before filtration})}{5.0 \text{ g of bath sample}} \times 100\%$$



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Compatibility

Effects of BIOACT 280 on Plastics and Elastomers

Plastic / Elastomer	Percent (%) Weight Change				Percent (%) Thickness Change			
	72°F (22°C) 3 Month	150°F (66°C) 1 Hour	150°F (66°C) 3 Month	Control ¹ 150°F (66°C) 3 Month	72°F (22°C) 3 Month	150°F (66°C) 1 Hour	150°F (66°C) 3 Month	Control ¹ 150°F (66°C) 3 Month
ACETAL (Delrin, Celcon)	-1.1%	0.0%	0.1%	-0.1%	0.0%	0.0%	1.6%	1.6%
ACRYLIC (Lucite, Plexiglas)	0.2%	0.0%	0.2%	-0.2%	-1.6%	0.0%	-3.1%	1.6%
ACRYLONITRILE	0.2%	0.1%	24.9%	0.0%	1.6%	0.0%	12.5%	9.4%
BUNA N	-1.2%	-0.1%	-5.2%	-0.2%	3.4%	-3.3%	-3.3%	0.0%
BUNA S	106.0%	45.0%	123.7%	0.0%	36.4%	12.1%	42.4%	3.0%
CPVC	9.7%	0.5%	192.9%	0.0%	0.0%	-5.0%	90.0%	9.5%
EPDM	21.4%	19.9%	35.3%	-0.7%	11.1%	3.6%	17.9%	3.7%
FIBERGLASS (G-10 Epoxy Glass)	0.5%	0.1%	0.1%	0.0%	3.1%	0.0%	3.1%	1.6%
HDPE	3.9%	0.1%	5.1%	0.3%	0.0%	0.0%	-1.6%	-1.6%
LDPE	5.4%	1.9%	15.7%	0.2%	0.0%	0.0%	3.1%	0.0%
NATURAL RUBBER	173.7%	32.1%	stopped	4.6%	stopped	3.0%	Stopped	3.0%
NEOPRENE	29.2%	7.5%	38.1%	-1.2%	16.7%	0.0%	19.4%	0.0%
NYLON	2.1%	3.0%	2.3%	-0.7%	3.1%	0.0%	0.0%	0.0%
PBT (Valox, Gafite, Celanex)	0.1%	-0.1%	-0.1%	-0.1%	1.2%	1.3%	2.5%	0.6%
POLYAMIDE (Zytel, Minlon)	0.3%	0.0%	-0.1%	-0.3%	0.0%	0.0%	0.0%	0.0%
POLYCARBONATE (Lexan)	0.2%	0.0%	0.0%	-4.7%	3.1%	0.0%	0.0%	-6.3%
POLYETHERIMIDE (Utem)	0.3%	0.0%	-0.4%	-0.3%	3.1%	0.0%	0.0%	0.0%
POLYPHENYLENE OXIDE (Noryl)	0.1%	0.4%	cracked	0.1%	-1.6%	3.1%	18.7%	6.3%
POLYPROPYLENE	6.1%	0.6%	18.7%	0.2%	-1.6%	0.0%	0.0%	0.0%
POLYSTYRENE	9.1%	1.1%	dissolved	Stopped	6.3%	4.7%	Dissolved	stopped
POLYSULFIDE	23.2%	16.9%	33.1%	-0.4%	15.4%	11.1%	18.5%	3.7%
POLYSULFONE	0.2%	-0.1%	-0.2%	-0.2%	0.0%	0.0%	-1.6%	1.6%
PVC, CLEAR	0.1%	0.1%	0.7%	0.0%	0.0%	0.0%	1.6%	1.6%
PVC, WHITE	0.0%	0.0%	0.3%	0.0%	2.9%	0.0%	2.9%	5.7%
SILICONE	51.8%	16.7%	66.0%	0.6%	25.0%	9.4%	32.8%	1.6%
Teflon®	0.0%	0.0%	0.0%	0.0%	3.1%	0.0%	0.0%	0.0%

1. Effect of temperature only. Sample kept at 150°F (66°C) with no solvent.

*Teflon is a registered trademark of DuPont.

Effects of BIOACT 280 on EP Rubber and VITON

			Material		
Time	Temperature	Percent (%) Change	EP Rubber	VITON®* A/B	VITON® F/G
15 Minutes	77°F (25°C)	Weight Change %	1.3%	0.0%	0.0%
		Thickness Change %	0.3%	0.0%	0.0%
	150°F (66°)	Weight Change %	1.8%	0.0%	0.0%
		Thickness Change %	0.4%	0.0%	0.0%
1 Hour	77°F (25°C)	Weight Change %	3.4%	-0.0%	0.0%
		Thickness Change %	3.4%	0.0%	0.0%
		Weight Change %	4.8%	-0.0%	0.0%

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	150°F (66°)	Thickness Change %	4.0%	0.0%	0.0%
1 Day	77°F (25°C)	Weight Change %	19.9%	-0.01%	0.1%
		Thickness Change %	9.9%	0.0%	0.0%
	150°F (66°)	Weight Change %	32.8%	0.0%	0.4%
		Thickness Change %	17.1%	0.0%	0.0%
1 Week	77°F (25°C)	Weight Change %	34.2%	-0.0%	0.3%
		Thickness Change %	14.9%	0.3%	0.0%
	150°F (66°)	Weight Change %	33.1%	0.1%	1.0%
		Thickness Change %	20.6%	0.9%	0.0%
1 Month	77°F (25°C)	Weight Change %	30.8%	-0.4%	0.6%
		Thickness Change %	19.9%	-0.6%	1.0%
	150°F (66°)	Weight Change %	31.1%	0.3%	1.4%
		Thickness Change %	21.8%	0.3%	3.8%

* VITON is a registered trademark of DuPont Dow Elastomers

Approvals/Testing

Approvals

- **General Electric Aviation**
 - General parts cleaner and as a plating wax remover on GEAE and CFMI engine hardware.
 - Per the Master Cleaner List 3.6.5 identified in GE Aviation SCWC (supply chain web center), Semi-Aqueous Immersion Cleaners (100%)
- **Honeywell**
 - Process Specification C7010, Rev H
- **International Aero Engines**
 - (IAE) CoMat 01-460
- **Pratt & Whitney**
 - MCL E-205 Titanium Stress Corrosion Test
 - PMC 8913-1,-2 Wax Removal Solvent for SPOP 37 Method 2 Removal of Plating Wax (SPM Rev 120, Part #585005)
 - PMC 8913-1,-2 Wax Removal Solvent for POP 1800-U Masking of Parts Prior to Selective Painting, Chemical Processing, Painting or Stripping

Testing

- **ASTM F1110, F2111, F945, F519**
- Conforms to **Honeywell** EMS 53170 Rev C 10-21-97 Type 1
- Supported by **Hawker Pacific Aerospace**, U.K. as a General-Purpose High Temperature Degreasing Agent

NSN# 7930-01-596-8654 (55 gal)

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Environmental/Regulatory/Sustainability

Ozone Depletion Potential (ODP)	Zero
Global Warming Potential (GWP)	Essentially Zero
Hazardous Air Pollutant (HAP)	No
Volatile Organic Compound (VOC)	137 g/L
Superfund Amendments and Reauthorization Act (SARA)	Not regulated
National Emission Standards for Hazardous Air Pollutants (NESHAPs)	Not regulated
Resource Conservation and Recovery Act (RCRA)	Not regulated

Disposal/Safety

Disposal

Vantage recommends contacting your current or local environmental service company for proper disposal.

Safety

Please see Safety Data Sheet for further information.

Packaging

Available in 36 lb (16 kg) pails and 400 lb (181 kg) drums.

Shelf Life

36 months when stored in original, sealed container 50 °F (10 °C). Protect product from freezing.



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