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**Product Selector Guide  
for the Aerospace Industry**



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The aerospace group of Henkel develops structural adhesives and metal and composite surfacing treatments that serve the aircraft OEM and MRO industries. Henkel invests heavily in R&D and product support and is a leader in these industries. Innovative materials provide our customers with practical, economic and performance benefits.

Our key product brands are:

- Hysol® Structural Adhesives
- Frekote® Mold Release Systems
- Turco® Surface Treatments
- Alodine® Conversion Coatings

### OUR ADHESIVE SYSTEMS INCLUDE:

#### Paste Adhesives and Specialty Resins

Hysol® one- and two-part epoxy paste adhesive systems for potting, bonding, fairing, and repair; moldable plastic shim; matrix resins; and specialty resins for resin transfer molding, wet lay-up, and repair. Our current developmental products include VARTM, RTM and RFI materials based upon Henkel's new Epsilon chemistry. This new chemistry, based upon benzoxazine chemistry, is room temperature stable and has high Tg, even under wet conditioning.

#### Film Adhesives and Primers

Hysol® film adhesives and corrosion-inhibiting low VOC primers for metal and composite bonding; engine nacelle bonding; and honeycomb applications, such as control surfaces, wing flaps, engine slats, leading edges, and wing-to-body fairings. Nitrile phenolic systems provide excellent chemical and fuel resistance.

#### Core Splice Adhesives

Extensive product selection of foaming core splice adhesives; controlled expansion; excellent slump resistance; dual cure capabilities; low exotherm properties; closed cell technology; and extrudable versions are available.

#### Syntactic Products

SynSpand® closed-cell expanding syntactic films feature custom density-to-strength ratios in honeycomb core fill and core splice, resulting in lower costs of co-cure applications by eliminating secondary manufacturing processes.

SynCore® syntactic films for lightweight composite designs. Ideal for edge close-out and composite sandwich structure. Available in shaped form for custom designs.

SynSkin® composite surfacing films for flawless off-tool composite surface and reduction of surface preparation steps prior to painting. Available with metallic screens/foils for composite lightning strike protection.

#### Mold Release Coatings

Frekote® semi-permanent release coatings, the standard in mold release agents for composite and metal tool surfaces. Dependable release, ease of application, high gloss finish, minimal mold build-up, and maximum releases per application. Our newest Frekote® product is water-based and low VOC.



### OUR SURFACE TREATMENT SYSTEMS INCLUDE:

#### Metal Process Line Cleaners

Wide array of neutral, alkaline or acid process line cleaners to fit the demanding requirements of the aerospace industry. Designed for either multi-metal or specific substrates to meet requirements of OEM customers. May be used in immersion, spray or brush applications. Extensive line of exterior aircraft cleaners meeting comprehensive OEM and military specifications.

#### Etchants and Deoxidizers

Latest technology in etchants and deoxidizers used prior to conversion coating, anodizing or chemical milling. OEM approvals are key to the selection of appropriate process line chemistries. All Henkel products are OEM specified.

#### Conversion Coatings

Alodine® conversion coatings for light metals, such as aluminum, magnesium and titanium. Henkel is the industry leader in conversion coating technologies, with traditional industry standard products, such as Alodine® 1200S™, as well as alternative non-chrome solutions, such as Alodine® 5700™ or Alodine® T-5900™.

#### Jet Engine Chemistries

Henkel produces all process chemistries for the overhaul of aircraft engines and land based compressors. Simplified processes meet OEM standard practices. Process solutions for both hot and cold sections. Designed to remove the toughest soils and scales, and provide for efficient NDT evaluation. New "GL" (global) product line offers Henkel products and quality around the world.

Compressor wash products provide on-wing cleaning solutions for improved engine performance and reduced fuel consumption.

#### Accessory Shops, Removed Components, Flap and Wheel Well Cleaners

Engineered solutions for the industry's most demanding requirements include paint strippers, scale removers, dinol remover, wax removers and general application cleaners. Extensive line of products for cleaning aircraft components and accessory parts, flaps, wheel wells, and wheel and brake assemblies.

#### Paint Strippers, Maskants, Machine and Grinding Coolants

Extensive line of environmentally advantaged paint strippers for use in depaint of aircraft and aircraft parts. NESHAP compliant thixotropic strippers are designed to cling to vertical surfaces and improve paint removal efficiency. Dual phase immersion paint strippers utilize a thin seal layer to prevent evaporation and reduce consumption of key stripping components.

Turco® 2K maskants provide one-pass coatings that can be processed within minutes of application, eliminating the need for multiple coats and extensive ventilation and solvent recovery equipment.

Multan® biostable cutting and grinding fluids for metalworking are designed for substrates ranging from aluminum to exotic steel and titanium alloys. No tank-side additions of biocide or EP additives are necessary. Multan® products improve tool life and provide additional operational savings over competitor products.

**OUR SURFACE TREATMENT SYSTEMS INCLUDE COMPLETE PROCESS SOLUTIONS:**

**Aircraft Depaint / Repaint Systems**

**Paint Strippers**

- Turco® 1270-6™
- Turco® 5351™ (T-5469™)
- Turco® 6776-LO™
- Turco® 6776™ Thin
- Turco® 6813-E™
- Turco® 6813-ED™
- Turco® 6877™
- Turco® 6881™
- Turco® EA Stripper 6930™

**Cleaners**

- Turco® 5948-DPM™
- Turco® 5948-R™
- Turco® Aerowash®

**Corrosion Removers**

- Turco® Alumiprep® 33™
- Turco® Metal Glo #6
- Turco® Metal Glo FF (Concentrate)
- Turco® Metal Glo FF RTU
- Turco® WO #1™

**Conversion Coatings**

- Alodine® 120™ Brush Kit
- Alodine® 600™
- Alodine® 600™ RTU
- Alodine® 871™ Touch-N-Prep®
- Alodine® 1000™ RTU
- Alodine® 1132™ Touch-N-Prep®
- Alodine® 1200S™
- Alodine® 1201™

**Conversion Coatings (cont.)**

- Alodine® 1500™
- Alodine® 1600™
- Alodine® 5200™
- Alodine® 5700™
- Alodine® T 5900™
- Alodine® T 5900™ Toner
- Alodine® T 5900™ RTU
- Alodine® Magnesium Treatment Kit

**Jet Engine Overhaul Processes**

**Alkaline Process**

- Turco® T-4181L™  
(Liquid Alkaline Rust Remover)
- Turco® 4338 L™
- Turco® 5948-DPM™
- Turco® 5948-R™
- Turco® Liquid Sprayeze NP-LT™
- Turco® Rust Bloc

**Alkaline / Acid Process**

- Turco® T-4181L™  
(Liquid Alkaline Rust Remover)
- Turco® 4338-L™
- Turco® 4409™
- Turco® 5948-DPM™
- Turco® Scale Gon 5™
- Turco® Scale Gon 7™
- Turco® Rust Bloc

**Bearing Cleaning Process**

- Turco® T-4181L™  
(Liquid Alkaline Rust Remover)
- Turco® Aquasorb

**Compressor Washes**

- Turco® 5884™
- Turco® 6783™ Series

**Thrust Reverser Cleaner**

- Turco® 5805™
- Turco® 5948-DPM™ Thick

**Paint and Carbon Removers**

- Turco® 5668™
- Turco® 6776™ Thin
- Turco® 9045-6™

**General Purpose Cleaning**

- Turco® 5948-DPM™
- Turco® 5948-DPM™ Thick
- Turco® Liquid Sprayeze NP-LT™
- Turco® Rust Bloc

**Titanium Cleaners**

- Turco® T-4181L™  
(Liquid Alkaline Rust Remover)
- Turco® Vitro-Klene

**Plater's Wax Remover**

- Turco® 6802™

**Cleaners**

- Ridoline® 298™
- Turco® T-4181L™  
(Liquid Alkaline Rust Remover)
- Turco® 4215 NC-LT™
- Turco® 4460-BK™
- Turco® 5578-L™
- Turco® 5578-AL™
- Turco® 5578-GL™
- Turco® 6751-L™
- Turco® 6780™
- Turco® 6849™

**Cleaners (cont.)**

- Turco® Altrex® 24™
- Turco® Ridoline® 4355™
- Turco® Vitro-Klene

**Etchants/Brighteners**

- Aluminux® Etch L™
- Turco® Alumiprep® 33™
- Turco® Metal Glo #6™
- Turco® Metal Glo FF (Concentrate)
- Turco® Metal Glo FF RTU
- Turco® Mil Etch®

**Etchants/Brighteners (cont.)**

- Turco® Nova EC-202 L™
- Turco® WO #1™

**Deoxidizers**

- Turco® Aldox® V™
- Turco® Deoxalume® 2310™
- Turco® Turco® 6™/16™ Deoxidizer
- Turco® Liquid Smut-Go® NC™
- Turco® Nitradd (T-4104™)

**Deoxidizers**

- Turco® Aldox® V™
- Turco® Deoxalume® 2310™
- Turco® Turco® 6™/16™ Deoxidizer

**Deoxidizers (cont.)**

- Turco® Liquid Smut-Go® NC
- Turco® Nitradd (T-4104™)

**Maskants**

- Turcoform 540R™ Maskant
- Turcoform 5580G™ Maskant

**Exhaust Track Remover**

- Turco® 5805™

**Interior Cleaners**

- Turco® 5948-DPM™

**Exterior Cleaners**

- Turco® 5948-DPM™
- Turco® 5948-R™
- Turco® Aerowash®
- Turco® Air-Tec #23™

**Landing Gear Cleaners**

- Turco® 5668™
- Turco® 5948-DPM™ Thick

**Wheel and Brake Cleaners (cont.)**

- Turco® 6751-L™
- Turco® Aviation
- Turco® Liquid Sprayeze NP-LT™
- Turco® Rust Bloc

**Flap and Wheel Well Cleaner**

- Turco® 5948-DPM™ Thick

**Wheel and Brake Cleaners**

- Turco® T-4181L™  
(Liquid Alkaline Rust Remover)
- Turco® 5668™

**Wipe Cleaners**

- Turco® 4460-BK™
- Turco® 6780™

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# Quick Reference Guide

## STRUCTURAL ADHESIVES

LEGEND	METAL AND HONEYCOMB ASSEMBLY
	COMPOSITE ASSEMBLY
	HIGH TEMPERATURE ASSEMBLY
	SURFACE TREATMENTS

RTM RESINS	SERVICE TEMPERATURE	POT LIFE (MINUTES)	PAGES 8-9
Hyso <sup>®</sup> EA 9150™ Resin	250°F/121°C	480	
TOUGH HIGH STRAIN PASTES	SERVICE TEMPERATURE	BELL PEEL ( 77°F/25°C)	PAGES 8-9
Hyso <sup>®</sup> EA 9309.3NA™	180°F/82°C	75 (lb/in)/335 (N/25mm)	
Hyso <sup>®</sup> EA 9313™	120°F/49°C	50 (lb/in)/225 (N/25mm)	
Hyso <sup>®</sup> EA 9320NA™	>180°F/82°C	35 (lb/in)/150 (N/25mm)	
Hyso <sup>®</sup> EA 9323™	250°F/121°C	4 (lb/in)/17.8 (N/25mm)	
Hyso <sup>®</sup> EA 9330™	180°F/82°C	60 (lb/in)/265 (N/25mm)	
Hyso <sup>®</sup> EA 9330.3™	180°F/82°C	60 (lb/in)/265 (N/25mm)	
Hyso <sup>®</sup> EA 9346.5™	300°F/149°C	60 (lb/in)/265 (N/25mm)	
Hyso <sup>®</sup> EA 9359.3™	200°F/93°C	75 (lb/in)/335 (N/25mm)	
Hyso <sup>®</sup> EA 9360™	>225°F/107°C	60 (lb/in)/265 (N/25mm)	
Hyso <sup>®</sup> EA 9371™	180°F/82°C	15 (lb/in)/70 (N/25mm)	
Hyso <sup>®</sup> EA 9380™	250°F/121°C	50 (lb/in)/220 (N/25mm)	
HIGH TEMPERATURE FILLED PASTES	SERVICE TEMPERATURE	POT LIFE (MINUTES)	PAGES 8-11
Hyso <sup>®</sup> EA 934NA™	300°F/149°C	40	
Hyso <sup>®</sup> EA 9321™	250°F/121°C	40	
Hyso <sup>®</sup> EA 9394™	350°F/177°C	100	
Hyso <sup>®</sup> EA 9394/C-2™	450°F/232°C	480	
Hyso <sup>®</sup> EA 9395™	350°F/177°C	100	
LIQUID SHIMS	SERVICE TEMPERATURE	POT LIFE (MINUTES)	PAGES 8-11
Hyso <sup>®</sup> EA 934NA™	300°F/149°C	40	
Hyso <sup>®</sup> EA 9360™	>225°F/107°C	40	
Hyso <sup>®</sup> EA 9377™	>200°F/93°C	60	
Hyso <sup>®</sup> EA 9394™	350°F/177°C	100	
Hyso <sup>®</sup> EA 9394.2™	225°F/107°C	15	
LOW VISCOSITY WET LAY-UP PASTES	CURE TEMPERATURE	POT LIFE (MINUTES)	PAGES 8-11
Hyso <sup>®</sup> EA 956™	77°F/25°C	30	
Hyso <sup>®</sup> EA 9390™	200°F/93°C	120	
Hyso <sup>®</sup> EA 9396™	77°F/25°C	75	
Hyso <sup>®</sup> EA 9396/C-2™	200°F/93°C	480	
SYNTACTICS AND LOW-DENSITY PASTES	SERVICE TEMPERATURE	DENSITY	PAGES 8-11
Hyso <sup>®</sup> EA 960F™	160°F/71°C	N/A	
Hyso <sup>®</sup> EA 9396.6MD™	300°F/149°C	37 (pcf)/0.60 (g/cc)	
Hyso <sup>®</sup> EA 9815™	250°F/121°C	N/A	
FREKOTE <sup>®</sup>	All Frekote <sup>®</sup> Products		PAGES 10-11
Mold Releases			
METAL BONDING FILMS	SERVICE TEMPERATURE	HONEYCOMB CLIMBING DRUM PEEL	PAGES 12-13
Hyso <sup>®</sup> EA 9628™	250°F/121°C	18 (in•lb/in)/80 (m•N/m)	
Hyso <sup>®</sup> EA 9628H™	250°F/121°C	20 (in•lb/in)/90 (m•N/m)	
Hyso <sup>®</sup> EA 9658™	350°F/177°C	20 (in•lb/in)/50 (m•N/m)	
Hyso <sup>®</sup> EA 9686™	300°F/149°C	17 (in•lb/in)/76 (m•N/m)	
Hyso <sup>®</sup> EA 9696™	250°F/121°C	25 (in•lb/in)/110 (m•N/m)	
Hyso <sup>®</sup> PL 737™	350°F/177°C	N/A	
Hyso <sup>®</sup> PL 777-1FR™	300°F/149°C	N/A	
COMPOSITE BONDING FILMS	SERVICE TEMPERATURE	OUTTIME (DAYS @ 77°F/25°C)	PAGES 12-13
Hyso <sup>®</sup> EA 9695™	>300°F/149°C	90	
Hyso <sup>®</sup> PL 795™	350°F/177°C	100	
Hyso <sup>®</sup> PL 795-1™	350°F/177°C	100	
Hyso <sup>®</sup> PL 7000™	300°F/149°C	30	
HIGH TEMPERATURE ENGINE NACELLE FILMS	SERVICE TEMPERATURE	OUTTIME (DAYS @ 77°F/25°C)	PAGES 12-13
Hyso <sup>®</sup> EA 9657™	400°F/204°C	15	
Hyso <sup>®</sup> EA 9658™	350°F/177°C	10	
Hyso <sup>®</sup> EA 9673™ (BMI)	550°F/288°C	30	
Hyso <sup>®</sup> EA 9689™	420°F/216°C	10	
Hyso <sup>®</sup> PL 780-1™	350°F/177°C	10	
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Hyso <sup>®</sup> EA 9895™	350°F/177°C	14	
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CORE SPLICES	SERVICE TEMPERATURE	EXPANSION RATIO	PAGES 16-17
Hyso <sup>®</sup> EA 9833.1™ (BMI)	450°F/232°C	2-3x	
Hyso <sup>®</sup> MA 557™	350°F/177°C	2.1-2.2x	
Hyso <sup>®</sup> MA 562™	350°F/177°C	2-3.5x	
Hyso <sup>®</sup> MA 562S™	350°F/177°C	2-3x	
Hyso <sup>®</sup> MA 562SFR™	350°F/177°C	2-3x	
Hyso <sup>®</sup> PL 460™	350°F/177°C	2-3x	
SynSpand <sup>®</sup> 9899CF™	350°F/177°C	1-2x	
NON-EXPANDING SYNTACTIC FILMS	SERVICE TEMPERATURE	DENSITY	PAGES 16-17
SynCore <sup>®</sup> 9823.1™	250°F/121°C	42 (pcf)/0.67 (g/cc)	
SynCore <sup>®</sup> 9872.1™	350°F/177°C	42 (pcf)/0.67 (g/cc)	

# Quick Reference Guide

## STRUCTURAL ADHESIVES CONTINUED

EXPANDING SYNTACTIC FILMS - CORE FILLS	SERVICE TEMPERATURE	DENSITY	PAGES 16-17
SynSpand <sup>®</sup> 9899™	350°F/177°C	8-25 (pcf)/0.12-0.40 (g/cc)	
SynSpand <sup>®</sup> 9899CF™	350°F/177°C	18-35 (pcf)/0.29-0.56 (g/cc)	
JET ENGINE ABRADABLE SEALS	SERVICE TEMPERATURE	OUTTIME (DAYS @ 77°F/25°C)	PAGES 16-17
SynSpand <sup>®</sup> EA 9890™	180°F/82°C	15	
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SynSkin <sup>®</sup> HC 9837.1™	350°F/177°C	90	
Hyso <sup>®</sup> PL 795SF™	350°F/177°C	100	
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CLEANERS	Ridoline <sup>®</sup> 298™	Turco <sup>®</sup> Altrex <sup>®</sup> 24™	Turco <sup>®</sup> T-4181L™ (Liquid Alkaline Rust Remover)
Turco <sup>®</sup> 4215 NC-LT™	Turco <sup>®</sup> Ridoline <sup>®</sup> 4355™	Turco <sup>®</sup> 4460-BK™	
Turco <sup>®</sup> 5578-L™	Turco <sup>®</sup> 5578-GL™	Turco <sup>®</sup> 5948-DPM™	
Turco <sup>®</sup> 5948-R™	Turco <sup>®</sup> 6751-L™	Turco <sup>®</sup> 6780™	
Turco <sup>®</sup> 6849™	Turco <sup>®</sup> Vitro-Klene		
DEOXIDIZERS	Turco <sup>®</sup> Aldox <sup>®</sup> V™	Turco <sup>®</sup> Deoxalume <sup>®</sup> 2310™	Turco <sup>®</sup> 6™ Deoxidizer Makeup
Turco <sup>®</sup> 16™ Deoxidizer Replenisher	Turco <sup>®</sup> Liquid Smut-Go <sup>®</sup> NC™	Turco <sup>®</sup> Nitradd (T-4104™)	
ETCHANTS	Aluminux <sup>®</sup> Etch L™	Turco <sup>®</sup> Alumiprep <sup>®</sup> 33™	Turco <sup>®</sup> Metal Glo #6™
Turco <sup>®</sup> Metal Glo FF (Concentrate)	Turco <sup>®</sup> Metal Glo FF RTU	Turco <sup>®</sup> Mil Etch <sup>®</sup>	
Turco <sup>®</sup> Nova EC-202 L™	Turco <sup>®</sup> WO #1™		
CIC REMOVER	Turco <sup>®</sup> 5948-DPM™ Thick		PAGES 20-21
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Turco <sup>®</sup> Scale Gon 5™	Turco <sup>®</sup> Scale Gon 7™		
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CONVERSION COATINGS	Alodine <sup>®</sup> 120™ Brush Kit	Alodine <sup>®</sup> 600™	PAGES 24-25
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Alodine <sup>®</sup> 5200™	Alodine <sup>®</sup> 5700™	Alodine <sup>®</sup> 1600™ Additive	
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LANDING GEAR	Turco <sup>®</sup> 5351™ Thin	Turco <sup>®</sup> 5668™	PAGES 26-27
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ACCESSORY SHOPS	Turco <sup>®</sup> Aquasorb	Turco <sup>®</sup> Aviation	PAGES 28-29
Turco <sup>®</sup> 5805™	Turco <sup>®</sup> 5948-DPM™ Thick	Turco <sup>®</sup> 4215 NC-LT™	
Turco <sup>®</sup> 9045-6™	Turco <sup>®</sup> 6802™		
CHEMICAL SPECIALTIES	P3 <sup>®</sup> 2469™ White Tacky Masking	P3 <sup>®</sup> 2485A™ Clear Masking	PAGES 28-29
Parcosol <sup>®</sup> 283™	Parcosol <sup>®</sup> 307™	P3 <sup>®</sup> 2455™ Baffle Coating	
P3 <sup>®</sup> 2474™ Peelable Masking	P3 <sup>®</sup> 2486™ Peelable Masking	Parcosol <sup>®</sup> 577WB™	
P3 <sup>®</sup> 116™ Saf-T-Clean	P3 <sup>®</sup> 104™ Saf-T-Clean	P3 <sup>®</sup> 2498™ Peelable Masking	
P3 <sup>®</sup> 2227A™ Oven Cleaner		P3 <sup>®</sup> 2226™ Maintenance Cleaner	
PAINT STRIPPERS	Turco <sup>®</sup> 1270-6™	Turco <sup>®</sup> 5351™ (T-5469™)	PAGES 30-31
Turco <sup>®</sup> 5668™	Turco <sup>®</sup> 6088-A™ Thin	Turco <sup>®</sup> 5351™ Thin	
Turco <sup>®</sup> 6776™ Thin	Turco <sup>®</sup> 6813-E™	Turco <sup>®</sup> 6776-LO™	
Turco <sup>®</sup> 6877™	Turco <sup>®</sup> 6881™	Turco <sup>®</sup> 6813-ED™	
		Turco <sup>®</sup> 6930™ EA Stripper	
TPC REMOVER	Turco <sup>®</sup> TPC Remover 88™	P3 <sup>®</sup> Coating Remover 2588T™	PAGES 30-31
MACHINE AND GRINDING FLUIDS	Multan <sup>®</sup> 5500™	Multan <sup>®</sup> 3105™	PAGES 30-31
Multan <sup>®</sup> B-451™	Multan <sup>®</sup> CR 26™	Multan <sup>®</sup> B-400™	

\* The above list represents our most common products. Additional products are featured on our website at [www.henkelna.com/aerospace](http://www.henkelna.com/aerospace).

# ADHESIVE SYSTEMS

## Paste Adhesives and Specialty Resins

We have experts available to design and install meter mix operations.  
Call Henkel for customized dispensing equipment or pre-measured packaging.  
See page 14 for more details.

Product	Applications										Characteristics				Mechanical Properties				Bulk Properties					Handling				Description		
	Potting	Structural Repair	Low Viscosity Wet Lay-up	Composite Bonding	High Peel Strength	Syntactic	Liquid Shim	180°F/82°C Service	300°F/149°C Service	Improved Hot/Wet Properties	Toughened	Service Temperature (°F/°C)	Consistency	Form (1 part or 2 part)	Peel Strength	Bell Peel 77°F (lb/in)/ 25°C (N/25mm)	Tensile Lap Shear			Tensile Strength @ 77°F (psi)/25°C (MPa)	Tensile Modulus @ 77°F (ksi)/25°C (MPa)	Elongation @ 77°F/25°C % at break	Compressive Strength @ 77°F (psi)/25°C (MPa)	Compressive Modulus @ 77°F (ksi)/25°C (MPa)	Mix Ratio Weight (Part A/Part B)	Cure Temperature (°F/°C)	Cure Time	Storage Temperature (°F/°C)	Pot Life (minutes/lb)/(minutes/kg)	
Hysol® EA 934NA™	•	•					•	•			300/149	Thixotropic	2	Nil	—	2800/ 19.3	3100/ 21.4	2000/ 13.8		6200/ 42.8	647/ 4450	1.2	13500/ 93.1	367/ 2530	100:33	77/25 200/93	5-7 days 1 hour	40/4	40/1 40/.5	Cures at 77°F/25°C, possesses superior strength to 300°F/ 149°C. Ideal for potting, filling, fairing and shim applications.
Hysol® EA 956™		•	•					•			300/149	Low Viscosity	2	Nil	—	1800/ 12.4	2300/ 15.9	1500/ 10.3		5800/ 40.0	370/ 2250	2.5	16900/ 116.6	580/ 4000	100:58	77/25 200/93	5-7 days 1 hour	40/4	30/1 30/.5	Very low viscosity, cures at room temperature, maintains strength at high temperatures. Ideal for wet lay-up repair.
Hysol® EA 960F™											160/71	Thixotropic	2	Nil	—	2000/ 13.8	2200/ 15.2	700/ 4.8		—	—	—	—	—	100:50	77/25 160/71	24 hours 1 hour	77/25	30/.25 30/.1	Fast-set fairing and smoothing compound for exterior aircraft surfaces. Color changes when fully mixed. Sandable after six hours.
Hysol® EA 9150™ Resin			•	•			•		•		250/121	Low Viscosity	2	Low	—	—	—	—		11000/ 75.9	414/ 2850	5	—	—	100:88	250/121	1 hour	77/25	480/1 480/.5	Low viscosity, toughened system formulated for resin transfer molding. 250°F/121°C cure and service temperature.
Hysol® EA 9309.3NA™		•	•	•			•	•	•		180/82	Moderate Viscosity	2	High	75/ 335	5500/ 38.0	5000/ 34.5	750/ 5.2		4500/ 31.0	324/ 2230	10	7500/ 51.7	245/ 1700	100:22	77/25 180/82	5-7 days 1 hour	77/25	35/1 35/.5	Toughened adhesive with excellent peel strength. Contains glass beads for bond line control.
Hysol® EA 9313™				•					•		120/49	Low Viscosity	2	High	50/ 225	4200/ 29.0	4500/ 31.0	500/ 3.5		6300/ 43.5	330/ 2280	8	9000/ 62.1	263/ 1800	100:25	77/25 180/82	5-7 days 1 hour	77/25	60/1 60/.5	Very low viscosity adhesive yielding tough, flexible bonds. Injectable.
Hysol® EA 9320NA™				•			•		•		>180/82	Moderate Viscosity	2	Moderate	35/ 150	3400/ 23.5	4600/ 31.7	1000/ 6.9		5000/ 34.5	330/ 2280	9	8800/ 60.7	265/ 1820	100:19	77/25 180/82	5-7 days 1 hour	77/25	25/.5 25/.25	High shear and high peel adhesive system with room temperature cure.
Hysol® EA 9321™	•	•					•		•		250/121	Thixotropic	2	Low	6/ 25	3000/ 20.7	4000/ 27.6	1700/ 11.7		7100/ 49.0	420/ 2900	6	9000/ 62.1	284/ 1960	100:50	77/25 180/82	5-7 days 1 hour	40/4	40/1 40/.5	Thixotropic adhesive that yields tough, durable bonds over a wide temperature range.
Hysol® EA 9323™		•					•		•		250/121	Low Viscosity	2	Low	4/ 20	2800/ 19.3	4200/ 29.0	1100/ 7.6		3500/ 24.1	375/ 2600	9	10700/ 73.8	256/ 1770	100:45	77/25 180/82	5-7 days 1 hour	40/4	30/1 30/.5	Viscous, but pourable, liquid adhesive that yields tough, durable adhesive bonds over a wide temperature range.
Hysol® EA 9330™		•	•	•			•		•		180/82	Moderate Viscosity	2	High	60/ 265	5000/ 34.5	5000/ 34.5	750/ 5.2		5600/ 38.6	384/ 2650	2.4	7700/ 53.1	253/ 1750	100:33	77/25 180/82	5-7 days 1 hour	77/25	60/.25 60/.1	Easy mix adhesive with high peel strength and excellent environmental durability.
Hysol® EA 9330.3™		•	•	•			•		•		180/82	Thixotropic	2	High	60/ 265	5700/ 39.3	4900/ 33.8	750/ 5.2		6100/ 42.1	390/ 2680	9	—	—	100:33	77/25 180/82	5-7 days 1 hour	77/25	60/.25 60/.1	Non-slump thixotropic adhesive with high peel strength and excellent environmental durability.
Hysol® EA 9346.5™		•	•	•			•	•	•		275/135	Moderate Viscosity	1	High	60/ 265	4500/ 31.0	5500/ 38.0	4500/ 31.0		5000/ 34.5	260/ 1800	3	15000/ 103.5	400/ 2750	—	250/121	1 hour	40/4	14 days/1 14 days/.5	Moderate viscosity, one component, high peel and shear strength. Outstanding hot/wet properties. Recommended replacement for Hysol® EA 9304.1™ and Hysol® EA 9304.2™.
Hysol® EA 9359.3™		•	•	•			•	•	•		200/93	Thixotropic	2	High	75/ 335	4000/ 27.6	4500/ 31.0	1000/ 6.9		5300/ 36.6	320/ 2200	7.7	—	—	100:44	77/25 180/82	5-7 days 1 hour	77/25	40/1 40/.5	Excellent peel and shear strength. Bonds a variety of substrates. Volumetric mix ratio 2:1. Improvement over Hysol® EA 9309NA™ series adhesives.
Hysol® EA 9360™		•	•	•			•	•	•		>225/107	Thixotropic	2	High	60/ 265	4000/ 27.6	5000/ 34.5	1200/ 8.3		—	—	—	—	—	100:43	77/25 180/82	5-7 days 1 hour	77/25	40/.5 40/.25	Volumetric mix ratio 2:1. Structural adhesive, exhibits excellent peel strength, and tensile lap shear strength to 250°F/121°C.
Hysol® EA 9371™		•	•				•		•		180/82	Moderate Viscosity	2	Low	15/ 70	1600/ 11.0	3700/ 25.5	1000/ 6.9		—	—	—	—	—	100:62	77/25 180/82	24 hours 1 hour	40/4	18/.25 18/.1	Fast-set, tough, good hot/wet properties. Handling strength after two hours. Volumetric mix ratio 1:1.
Hysol® EA 9377™							•	•			>200/93	Thixotropic	2	Nil	—	2300/ 15.9	2300/ 15.9	2000/ 13.8		—	—	—	16000/ 110.3	700/ 4820	100:19	77/25 180/82	5-7 days 1 hour	40/4	60/.25 60/.1	Moldable plastic shim, excellent microcracking resistance under thermal cycling. High compressive strength.
<b>Hysol® EA 9380™</b>		•	•	•			•	•	•		250/121	Thixotropic	2	High	50/ 225	4650/ 32	5350/ 37	>3500/ >24.1		—	—	—	11300/ 78	355/ 2950	100:55	160/70	4 hours	40/4	180/1 180.5	Cures at low temperature. Offers strength, toughness and high temperature resistance of heat-curing film adhesives, with greater flexibility and ease of use. Can be applied to large parts with controlled meter mix operation.
Hysol® EA 9390™		•	•	•			•	•			>350/177	Low Viscosity	2	Nil	—	2200/ 15.2	3500/ 24.1	3000/ 20.7		8200/ 56.6	418/ 2900	2.5	5300*/ 36.6*	—	100:56	200/93	3.5 hours	40/4	120/.5 120/.25	Low viscosity system for high temperature wet lay-up composite repair. Qualified to BMS 8-301.

NOTE: New products in bold.

\* Compressive shear strength as a wet lay-up resin with 3K-70-P fiber.



# ADHESIVE SYSTEMS

## Paste Adhesives and Specialty Resins and Mold Release Products

Product	Applications				Characteristics				Mechanical Properties				Bulk Properties				Handling				Description									
	Potting	Structural Repair	Low Viscosity Wet Lay-up	Composite Bonding	High Peel Strength	Syntactic	Liquid Shim	180°F/82°C Service	300°F/149°C Service	Improved Hot/Wet Properties	Toughened	Service Temperature (°F/°C)	Form (1 part or 2 part)	Peel Strength	Bell Peel 77°F (lb/in)/25°C (N/25mm)	Tensile Lap Shear -67°F (psi)/ -55°C (MPa)	77°F (psi)/ 25°C (MPa)	200°F (psi)/ 93°C (MPa)	Tensile Strength @ 77°F (psi)/25°C (MPa)	Tensile Modulus @ 77°F (ksi)/25°C (MPa)		Elongation @ 77°F/25°C % at break	Compressive Strength @ 77°F (psi)/25°C (MPa)	Compressive Modulus @ 77°F (ksi)/25°C (MPa)	Mix Ratio Weight (Part A/Part B)	Cure Temperature (°F/°C)	Cure Time	Storage Temperature (°F/°C)	Pot Life (minutes/lb)/(minutes/kg)	
Hysol® EA 9394™	•	•	•			•		•	•		350/177	Thixotropic	2	Low	20/ 90	3300/ 22.8	4200/ 29.0	2900/ 20.0		6675/ 46.0	615/ 4250	1.7	10000/ 158.6	—	100:17	77/25 150/66	5-7 days 1 hour	77/25	100/1 100/.5	Thixotropic adhesive with structural properties to 350°F/177°C. Volumetric mix ratio 4:1.
Hysol® EA 9394.2™	•	•				•	•		•		225/107	Thixotropic	2	Nil	—	2900/ 20.0	4500/ 31.0	—		—	—	—	—	100:27	77/25 200/93	24 hours 1 hour	77/25	15/.25 15/.1	Fast cure adhesive for liquid shim and potting. Handling strength within 6-8 hours.	
Hysol® EA 9394™/C-2™		•						•			450/232	Moderate Viscosity	2	Low	10/ 45	3500/ 24.0	5000/ 34.5	3500/ 24.1		—	—	—	24000/ 165.5	—	100:20	200/93	1 hour	77/25	480/1 480/.5	Elevated cure, thixotropic adhesive with structural properties to 450°F/232°C.
Hysol® EA 9395™	•	•	•					•	•	•	350/177	Thixotropic	2	Low	15/ 70	2300/ 15.9	4000/ 27.6	2400/ 16.6		8070/ 55.7	715/ 4900	2.6	14000/ 96.6	428/ 2950	100:17	77/25 150/66	5-7 days 1 hour	77/25	100/1 100/.5	Two-part, non-metallic filled version of Hysol® EA 9394™.
Hysol® EA 9396™		•	•	•				•	•	•	350/177	Low Viscosity	2	Moderate	25/ 110	3300/ 22.8	3500/ 24.1	3200/ 22.1		8000/ 55.2	400/ 2750	3.4	70000* 482.8*	8000* 55150*	100:30	77/25 150/66	5-7 days 1 hour	77/25	75/1 75/.5	Two-part, low viscosity, unfilled version of Hysol® EA 9394™. Qualified to BMS 8-301.
Hysol® EA 9396™/C-2™		•	•	•				•	•		400/204	Low Viscosity	2	Low	15/ 70	2500/ 17.2	3000/ 20.7	2000/ 13.8		—	—	—	14000/ 96.6	—	100:36	200/93	1 hour	77/25	480/.25 480/1	Two-part, elevated cure, unfilled, low viscosity adhesive with structural properties to 400°F/204°C.
Hysol® EA 9396.6MD™	•				•			•			300/149	Syntactic	2	Nil	—	2000/ 13.8	2600/ 18.0	1500/ 10.3		—	—	—	3800/ 26.2	—	100:31	77/25 180/82	5-7 days 1 hour	40/4	120/1 120/.5	77°F/25°C cure syntactic, with excellent high temperature properties. Density of 37 pcf (0.6 g/cc).
Hysol® EA 9815™	•		•	•				•	•	•	250/121	Moderate Viscosity	1	High	50/ 275	4500/ 31	5100/ 35	2500/ 1700		—	—	—	26739/ 185	267/ 1843	—	250/121	1 hour	0/-18	14 days/1 14 days/.5	Pumpable, one-component, high peel and high shear strength when bonding to aluminum and composite substrates. Reduced application time.

\* Longitudinal compressive strength as a wet lay-up resin with T-300-W133 fiber.



## Mold Release Products

Product	Application Temperature Range	Cure Time	Benefits	Description	Product	Application Temperature Range	Cure Time	Benefits	Description
<b>Frekote® Wipes</b>	Ambient	Cure for 30 minutes at ambient temperature after last coat	<ul style="list-style-type: none"> <li>Easy convenient package for single wipe use</li> <li>Easily applied at room temperature</li> <li>Utilizes high quality lint-free wipe cloths</li> <li>May be used for touch-up applications</li> <li>Improved storage stability</li> </ul>	Frekote® Wipes are pre-saturated with a semi-permanent, non-migratory release system that chemically bonds to the mold surface to form a microthin film, which is stable at temperatures exceeding most molding processes. Easy pack design allows pre-saturation prior to use, thus extending usable shelf life of the wipe.	Frekote® 48-NC™	Up to 140°F/60°C	3 hours at room temperature, or bake for 15 mins. at 210°F-300°F/100°C-150°C	<ul style="list-style-type: none"> <li>High thermal stability</li> <li>Better mold utilization</li> <li>No mold build-up</li> <li>High productivity</li> <li>Significantly lower mold maintenance costs</li> <li>No contaminating transfer</li> </ul>	A non-CFC release agent with the same polymeric base as Frekote® 44-NC™, with only a slight modification in the solvent blend for better non-transference. This semi-permanent, non-migratory release system chemically bonds to the mold surface to form a microthin film, which is stable at temperatures exceeding most molding processes.
<b>Frekote® 901-WB™</b>	70°F-90°F/21°C-32°C	Cure for more than 1 hour at ambient temperature after last coat	<ul style="list-style-type: none"> <li>Non-toxic water-based system</li> <li>Apply at room temperature</li> <li>Cure at room temperature</li> <li>Low VOC</li> <li>Non-flammable</li> <li>Thermal stability to 480°F/250°C</li> </ul>	A proprietary water-based emulsion developed for releasing aerospace and other high performance composite structures. Designed to be applied and cured at ambient shop temperature. Spray application is recommended for best appearance of part off tool.	Frekote® 55-NC™	Up to 140°F/60°C	30 mins. at room temperature, or bake for 5 mins. at 210°F-300°F/100°C-150°C	<ul style="list-style-type: none"> <li>Fast dry and cure</li> <li>No mold build-up</li> <li>High thermal stability</li> <li>Reduced odor</li> <li>No contaminating transfer</li> </ul>	A non-CFC release agent designed to provide multiple releases with no contaminating transfer. This semi-permanent release system chemically bonds to the mold surface to form a microthin film that is stable at process temperatures.
Frekote® B-15™ Sealer	Up to 140°F/60°C	24 hours at room temperature, or bake for 60 mins. at 210°F-300°F/100°C-150°C	<ul style="list-style-type: none"> <li>Seals mold porosity</li> <li>No contaminating transfer</li> <li>Compatible with all Frekote® products</li> </ul>	Formulated as a sealer for molds with microporosity problems, small surface scratches or imperfections. Used in conjunction with other Frekote® products, Frekote® B-15™ provides an excellent base coat, enhancing the release advantages of all Frekote® products.	Frekote® 700-NC™	Up to 275°F/135°C	5-10 mins. after final coat at room temperature	<ul style="list-style-type: none"> <li>Superior multiple release</li> <li>High gloss and high slip</li> <li>No chlorinated solvents</li> <li>Versatile: releases most polymers</li> </ul>	A non-CFC, semi-permanent, multiple release polymer resin that effectively releases all thermoset resins. Versatile agent that provides slip where mold geometry problems are encountered. Cures at room temperature, gives high-gloss finish to molded parts.
Frekote® 44-NC™	Up to 140°F/60°C	3 hours at room temperature, or bake for 15 mins. at 210°F-300°F/100°C-150°C	<ul style="list-style-type: none"> <li>High thermal stability</li> <li>Better mold utilization</li> <li>No mold build-up</li> <li>High productivity</li> <li>Significantly lower mold maintenance costs</li> <li>No contaminating transfer</li> </ul>	A non-CFC release agent designed to provide multiple releases with no contaminating transfer. Can be used for the release of thermoplastics, thermosetting resins, boron, aramid, graphite/carbon fiber composites and fiberglass laminates.	Frekote® 770-NC™	Up to 140°F/60°C	5-10 mins. after final coat at room temperature	<ul style="list-style-type: none"> <li>Fast dry and cure</li> <li>High gloss and high slip</li> <li>Versatile: releases most polymers</li> <li>No mold build-up</li> <li>Reduced odor</li> </ul>	A non-CFC, semi-permanent, multiple release polymer resin that effectively releases all thermoset resins. Versatile agent that provides slip where mold geometry problems are encountered. Rapid dry and cure at room temperature to give a high slip film capable of maximum release performance.

NOTE: New products in bold.

# ADHESIVE SYSTEMS

## Film Adhesives

Product	Applications					Characteristics		Mechanical Properties					Bulk Properties		Handling		Storage Temperature (°F/°C)	Description	
	Sprayable	Composite Surfacing	Low VOC	Composite Bonding	Metal & Honeycomb Bonding	180°F/82°C Service	350°F/177°C Service	Service Temperature (°F/°C)	Outtime (Days @ 77°F/25°C)	-67°F (psi)/-55°C (MPa)	77°F (psi)/25°C (MPa)	Lap Shear	Elevated Temperature (psi/MPa)	Honeycomb Climbing Drum Peel @ 77°F (in•lb/in)/ 25°C (m•N/m)	Flatwise Tension @ 77°F/25°C (psi/MPa)	Primer Coverage			Tg Dry (°F/°C)



FILM ADHESIVES

FILM ADHESIVES

FILMS																						
Hysol® EA 9628™				•	•	•		250/121	20	5500/38.0	6000/41.3	2000 @ 250°F 13.8 @ 121°C	18/80	1400/9.7	—		250/121	210/99	250/121	1	0/-18	First generation, modified epoxy film, good stress, environmental resistance and structural properties up to 250°F/121°C. Data from .060 psf, 300 g/m².
Hysol® EA 9628H™				•	•	•		250/121	20	5500/38.0	5800/40.0	1500 @ 250°F 10.3 @ 121°C	20/90	1100/7.6	—		240/116	200/93	250/121	1	0/-18	First generation, modified epoxy film, high peel strength, good stress, environmental resistance and structural properties up to 250°F/121°C. Data from .060 psf, 300 g/m².
Hysol® EA 9657™				•	•		•	400/204	15	4800/33.0	5000/34.5	2300 @ 350°F 15.9 @ 177°C	13/60	1150/8.0	—		360/182	270/132	350/177	1	0/-18	High temperature, service film adhesive designed for high honeycomb peel in a reticulated sound suppression structure. Qualified to BMS 5-137. Data from .080 psf, 400 g/m².
<b>Hysol® EA 9658™</b>				•	•		•	350/177	15	3900/27.0	4800/33.0	2800 @ 350F 19 @ 177C	12/50	1000/7.0	—		392/200	300/150	350/177	1	0/-18	High temperature and high durability film adhesive designed for high toughness and high temperature performance where continuous exposures up to 350°F/177°C are required.
Hysol® EA 9673™ (BMI)				•	•		•	550/288	30	2000/13.8	2000/13.8	2200 @ 500°F 15.2 @ 260°C	3/15	600/4.1	—		568/298	410/210	350/177	1***	0/-18	Modified BMI film adhesive, superior strength to 550°F/288°C. Moisture resistant, processes like conventional high temperature epoxies. Minimum order required. Data from 0.10 psf, 500 g/m².
Hysol® EA 9686™		•		•	•	•		300/149	90	5800/40.0	5800/40.0	1000 @ 300°F 6.9 mpa @ 149°C	17/76	1000/6.9	—		271/133	N/A	250/121	1	0/-18	Second generation, moisture resistant, toughened 250°F/121°C curing film with service performance to 300°F/149°C. Excellent for composite or metal bonding. Data from .060 psf, 300 g/m².
Hysol® EA 9689™				•	•		•	420/216	10	3700/25.5	3500/24.1	3200 @ 350°F 22.0 @ 177°C	8/35	850/5.9	—		435/224	345/174	350/177	1	0/-18	Modified epoxy film adhesive with high temperature strength and long term thermal durability. Data from 0.10 psf, 500 g/m².
Hysol® EA 9695™		•		•	•	•		>300/149	90	4400*/30.3*	5000*/34.5*	2800* @ 270°F 19.3* @ 132°C	—	1200/8.3	—		<sup>1)</sup> 252/122 <sup>2)</sup> 302/150	<sup>1)</sup> 187/86 <sup>2)</sup> 203/95	250/121 350/177	1.5	0/-18	Second generation low-flow composite bonding film, excellent environmental resistance. Composite structure repair, cure and co-cure with composite laminates. Qualified to Airbus. Data from .050 psf, 250 g/m².
Hysol® EA 9696™		•		•	•	•		250/121	60	7000/48.3	6000/41.3	2000 @ 250°F 13.8 @ 121°C	25/110	1300/9.0	—		250/121	220/104	250/121	1	0/-18	Second generation moisture resistant, toughened 250°F/121°C service, modified epoxy film. Qualified to BMS 5-101 and BMS 5-129. Data from .060 psf, 300 g/m².
Hysol® PL 737™				•	•	•		350/177	14	2500/17.2	3500/24.1	2400 @ 350°F 16.5 @ 177°C	—	5195/35.8	—		—	—	295/146 350/177	2 1	0/-18	Non-metallic, modified epoxy film specifically designed for use in structural aircraft components. Low flow characteristics. Intermittent service to 400°F/204°C.
Hysol® PL 777-1FR™				•	•			300/149	20	5000/34.5	5000/34.5	2900 @ 250°F 20.0 @ 121°C	—	—	—		—	—	250/121 350/177	1.5 1	0/-18	Flame retardant, non-metallic modified epoxy film adhesive designed to cure at either 250°F/121°C or 350°F/177°C with a service temperature in excess of 300°F/149°C.
Hysol® PL 780-1™				•	•	•	•	350/177	10	2700/18.6	4200/29.0	1800 @ 350°F 12.4 @ 177°C	—	1075/7.4	—		—	—	350/177	1	0/-18	Non-metallic, toughened, modified epoxy film designed for bonding metal, composite and thermoplastic structures. High shear properties at 350°F/177°C. Excellent hot-wet properties. High flow characteristics.
Hysol® PL 795™		•		•		•	•	350/177	100	3500/24.1	3900/26.9	2500 @ 270°F 17.2/132°C	—	864/5.9	—		—	—	250/121 350/177	1.5 1	0/-18	Epoxy film adhesive designed for composite bonding applications. May cure at 250°F/121°C or 350°F/177°C, with service temperatures up to 350°F/177°C. Ideal for co-cure or secondary bonding applications. Outstanding handling characteristics. Superior elevated temperature performance at 270°F/132°C. Excellent outtime. Exceeds requirements of BMS 5-154. Can be used for both surfacing film and lightning strike applications.
Hysol® PL 795-1™		•		•		•	•	350/177	100	3600/24.8	4300/29.7	1900 @ 300°F 13.1 @ 149°C	—	1000/6.9	—		—	—	250/121 350/177	1.5 1	0/-18	Tougher version of Hysol® PL 795™. Excellent flow characteristics. Excellent tack and handling characteristics. Improved elevated temperature performance. Can be used for both surfacing film and lightning strike applications.
<b>Hysol® PL 7000™</b>		•				•		300/149	30	3600/26.2	4500/31.0	1300 @ 270°F 9.0 @ 132°C	—	1070/7.4	—		145	—	250/121 350/177	1.5-2 1-2	0/-18	Epoxy film adhesive formulated to provide excellent performance properties in composite bonding, and has excellent results on composite surfaces that have been exposed to bond shop environments and may have absorbed moisture. Excellent fracture toughness (G <sub>1c</sub> ) over composite surfaces exhibiting cohesive failure patterns, indicating superior adhesion characteristics. Qualified at Boeing.

NOTE: New products in bold. \* Composite double overlap shear. \*\* On unetched metal. \*\*\* Postcure of 2 hours @ 475°F/245°C.

<sup>1)</sup> 250°F/121°C cure. <sup>2)</sup> 350°F/175°C cure.



# ADHESIVE SYSTEMS

## Syntactic Products



SYNTACTIC PRODUCTS

SYNTACTIC PRODUCTS

Product	Applications	Characteristics	Bulk Properties	Handling	Description												
Composite Surfacing	Syntactic Film, Non-Expanding	Syntactic Film, Expanding	Core Splice	180°F/82°C Service	300°F/149°C Service	Service Temperature (°F/°C)	Outtime (days @ 77°F/25°C)	Outtime (days @ 90°F/32°C)	Block Compressive (dry) @ 77°F (psi)/25°C (MPa)	Tensile Strength @ 77°F (psi)/25°C (MPa)	Tensile Modulus @ 77°F (ksi)/25°C (MPa)	Cure Temperature (°F/°C)	Cure Time (hours)	Storage Temperature (°F/°C)			
<b>SYNCORE® SYNTACTIC FILMS</b>																	
SynCore® 9823.1™	•		•			250/121	15	10	9000/62	4500/31	363/2500			250/121	1	0/-18	Toughened, low density syntactic core, superior moisture resistance, co-curable with a variety of 250°F/121°C curing epoxy prepregs.
SynCore® 9872.1™	•			•		350/177	15	10	8800/61	4500/31	400/2750			350/177	1	0/-18	Toughened, low density syntactic core, superior moisture resistance, co-curable with a wide variety of 350°F/177°C curing epoxy prepregs.
<b>SYNSPAND® EXPANDING SYNTACTIC FILMS</b>																	
SynSpand® EA 9890™ Abradable Seal		•				180/82	15	10	—	1100/7.6	62/430			250/121	2	0/-18	Expanding modified epoxy film, cures at 250°F/121°C, used for jet engine abradable fan seals.
SynSpand® 9899™		•				250/121	15	10	500 @ 12 pcf density/ 3.45 @ 0.19 g/cc	—	—			250/121	1	0/-18	Very high expansion, closed cell expanding film designed for use as shop floor aid in closed mold processes.
SynSpand® 9899CF™*		•	•			350/177	15	10	2000 @ 26 pcf density/ 13.8 @ 0.42 g/cc	—	—			250/121 or 350/177	1	0/-18	Closed cell expanding syntactic film for use in a designed medium density/strength range of 18-35 pounds per cubic foot (0.29-0.56 g/cc). Ideal for core filling and edge close-out.
<b>COMPOSITE SURFACING FILMS</b>																	
SynSkin® HC 9837.1™	•					350/177	90	21	—	—	—			250/121 or 350/177	1	0/-18	Epoxy-based composite surfacing film improves surface quality of honeycomb stiffened composite parts. Cures at 250°F/121°C or 350°F/177°C with a variety of epoxy prepregs. Resistant to microcracking from thermal cycling. Black and lightning strike versions available.
Hysol® PL 795SF™	•					350/177	100	—	—	—	—			250/121 or 350/177	1.5 or 1	0/-18	Modified epoxy film specifically formulated to improve the surface appearance of composite honeycomb structures. Excellent surface appearance; reduced pinholing, extra finishing. Superior outtime. Good building tack; repositionable on itself, prepregs, tools.
<b>CORE SPLICES</b>																	
									Tube Shears @ 77°F (psi)/25°C (MPa)	Tube Shears @ 250°F (psi)/121°C (MPa)							
Hysol® EA 9833.1™ (BMI)		•	•			450/232	30	10	1000/6.8	1000/6.8				350/177 with 450/232 postcure	2 @ 450°F/232°C	0/-18	Modified BMI foaming core splice, co-curable with a wide variety of 350°F/177°C curing epoxy prepregs. Elevated service temperature to 450°F/232°C.
Hysol® MA 557™		•	•			350/177	10	5	1191/8.2	1063/7.3				250/121 or 350/177	1.5 or 1	0/-18	Modified epoxy foaming adhesive that may be cured at 250°F/121°C or 350°F/177°C. Designed to seal, splice or reinforce honeycomb materials. Excellent slump resistance, medium tack, non-metallic.
Hysol® MA 562™		•	•			350/177	20	10	1200/8.3	1150/8.0				250/121 or 350/177	1.5 or 1	0/-18	General purpose 250°F/121°C or 350°F/177°C curing foaming adhesive. Designed for service temperatures from -67°F/-55°C to 350°F/177°C. Medium tack, non-metallic, low exotherm properties, excellent slump resistance, uniform expansion, qualified to many industry specifications.
Hysol® MA 562S™		•	•			350/177	10	10	1100/7.5	1000/6.8				250/121 or 350/177	1.5 or 1	0/-18	Modified epoxy foaming adhesive that may be cured at 250°F/121°C or 350°F/177°C. Non-metallic, medium tack, excellent slump resistance.
Hysol® MA 562SFR™		•	•			350/177	10	10	850/5.8	1000/6.8				250/121 or 350/177	1.5 or 1	0/-18	Modified epoxy foaming adhesive that may be cured at 250°F/121°C or 350°F/177°C. Flame-retardant, non-metallic, medium tack, excellent slump resistance.
Hysol® PL 460™		•	•			350/177	30	10	1682/11.6	1170/8.1				250/121 or 350/177	1.5 or 1	0/-18	Foaming epoxy adhesive in paste form for easy extrusion through packaged cartridges. Expands and cures at temperatures from 250°F/121°C to 350°F/177°C. Qualified to Boeing BMS 5-90, Type IV.

\* SynSpand® 9899CF™ may also be used as a core splice.

# SURFACE TREATMENTS

## Cleaners

Product	Applications	Characteristics	Substrate	Operation	Description
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CLEANERS

CLEANERS

Product	Applications	Characteristics	Substrate	Operation	Description
<b>CLEANERS</b>					
<b>Ridoline® 298™</b>	●	Liquid Concentrated Immersion 4-10 gals per 100 gals Water	Alkaline ●	130°-180°F 54°-82°C 3-15 minutes	Ridoline® 298™ is a liquid, non-silicated, immersion cleaner for aluminum and aluminum 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.
<b>Turco® Altrex® 24™</b>	●	Liquid Concentrated Immersion 6 gals per 100 gals Water	Alkaline ● ● ● ● ● ●	120°-180°F 49°-82°C 3-10 minutes	Turco® Altrex® 24™ is an inhibited, non-etching, concentrated liquid alkaline cleaner for cleaning aluminum and aluminum alloys. Turco® Altrex® 24™ is an effective remover of most soils found on aluminum, plus other metals, and can be used in a variety of cleaning operations. Turco® Altrex® 24™ is qualified under Boeing BAC 5749 as a medium duty soak cleaner.
<b>Turco® T-4181L™ (Liquid Alkaline Rust Remover)</b>	● ●	Liquid Concentrated Immersion Process Dependent - See Henkel Representative	Alkaline ● ● ● ●	176°-203°F 80°-95°C 15-60 minutes	Turco® T-4181L™ (Liquid Alkaline Rust Remover) 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. Will not attack ferrous alloys, magnesium alloys, stainless steels, brass, bronze or Monel alloys when used as directed. Turco® T-4181L™ (Liquid Alkaline Rust Remover) is normally used at 50% to 75% in water at 176°F-203°F/80°C-95°C and can be used on titanium alloys when diluted to 12% to 15% in water at 158°F-167°F/70°C-75°C.
<b>Turco® 4215 NC-LT™</b>	●	Powder Concentrated Immersion, Spray or Ultrasonic Immersion: 45-60 g/liter Spray: 7-15 g/liter Ultrasonic: 3-15 g/liter	Mildly Alkaline ● ● ● ● ●	113°-131°F 45°-55°C Immersion: 5-10 minutes Spray: 2-4 minutes	Turco® 4215 NC-LT™ is a white granular mix developed for cleaning ferrous and nonferrous alloys by spray, immersion and ultrasonic methods at low temperatures. Ideal for cleaning fuel and hydraulic components and for cleaning metals prior to metal bonding.
<b>Turco® Ridoline® 4355™</b>	●	Liquid Concentrated Immersion 5-15 gals per 100 gals Water	Alkaline ● ● ● ● ● ●	110°-160°F 43°-71°C 2-15 minutes	Turco® Ridoline® 4355™ 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. Superior cleaning characteristics compared to vapor degreasing, while providing some amount of interstage corrosion protection. Turco® Ridoline® 4355™ is approved per Boeing BAC 5763 and BAC 5749.
<b>Turco® 4460-BK™</b>	● ●	Liquid Ready-to-Use Wipe Use as Received	MEK Free Solvent ● ● ● ● ● ●	See Technical Data Sheet See Technical Data Sheet	Turco® 4460-BK™ is a water-white liquid formulated to replace methyl ethyl ketone and similar solvents that are environmentally unacceptable due to their high composite vapor pressures.
<b>Turco® 5578-L™</b>	●	Liquid Ready-to-Use Immersion or Spray Use as Received or Diluted to 15%	Alkaline ● ● ● ● ●	176°-203°F 80°C-95°C Immersion: 15-60 minutes	Turco® 5578-L™ is an amber, liquid compound formulated to clean and etch titanium, columbium and tantalum alloys by spray or immersion systems. 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. Boeing approved.
<b>Turco® 5578-GL™</b>	●	Liquid Ready-to-Use Immersion Use as Received or Diluted to 15%	Alkaline ● ● ● ● ●	176°-203°F 80°C-95°C Immersion: 15-60 minutes	Turco® 5578-GL™ is a liquid product formulated for alkaline etching of titanium, columbium and tantalum alloys by immersion systems or spray applications in addition to being an effective etch prior to adhesive bonding, diffusion bonding, painting, welding and brazing.
<b>Turco® 5948-DPM™</b>	● ● ● ●	Liquid Concentrated Immersion, Spray or Mop Immersion: 1:3-20 Spray/Mop: 1:9-30	Alkaline, Water-Based ● ● ● ● ●	149°-176°F 65°-80°C Immersion: 5-15 minutes	Turco® 5948-DPM™ is an alkaline, water-based, blue concentrated compound formulated to effectively clean painted and unpainted aircraft exterior and interior surfaces when diluted with water. Ideally suited for use on all models of jet aircraft. It is also designed to be used in immersion tanks, for dip applications.
<b>Turco® 5948-R™</b>	● ● ● ●	Liquid Concentrated Immersion, Spray or Mop 3%-30% in Water	Alkaline, Water-Based ● ● ● ● ●	149°-176°F 65°-80°C Immersion: 5-15 minutes	Turco® 5948-R™ is an alkaline, water-based, blue, concentrated compound formulated to effectively clean painted and unpainted aircraft exterior and interior surfaces when diluted with water. Ideally suited for use on all aircraft large or small, and for cleaning engine parts during engine overhaul. It is also designed to be used in immersion tanks, for dip applications.
<b>Turco® 6751-L™</b>	● ●	Liquid Concentrated Spray 1%-4% in Water	Alkaline ● ● ● ● ●	86°-140°F 30°-60°C 1-2 minutes	Turco® 6751-L™ is a liquid alkaline, low temperature cleaner for spray applications. It is a brown colored liquid, developed to remove shop soils, lube oils, light drawing oils and drawing waxes from ferrous and nonferrous metals. Rinses from metal surfaces with room temperature water and is effective from 30°C to 60°C.
<b>Turco® 6780™</b>	● ●	Liquid Ready-to-Use or Diluteable Wipe Ready-to-Use or Diluteable 1:10	Alkaline, Water-Based ● ● ● ● ●	See Technical Data Sheet See Technical Data Sheet	Turco® 6780™ is a clear, blue liquid formulated to replace petroleum distillates, chlorinated hydrocarbon solvents and other environmentally unacceptable solvents. Turco® 6780™ is ideal for removing general shop soils and machining fluids from parts and equipment, as well as cleaning floors in the machining area and may be used on all metals including high strength steel and titanium. It will not attack well-bonded paint, most plastics, or glass.
<b>Turco® 6849™</b>	●	Liquid Concentrated Immersion 10%-20% in Water	Alkaline ● ● ● ● ● ●	131°-158°F 55°-70°C Varies as Needed	Turco® 6849™ is a clear aqueous alkaline degreaser formulated to remove shop soils, marking inks, cosmoline, grease and lube oils from ferrous and non-ferrous alloys. Offers both exceptional effectiveness and exceptional tank life. Replaces solvent type vapor degreasing fluids with an effective aqueous cleaner. The costs and hazards normally associated with chlorinated solvent cleaning are thereby greatly reduced. Turco® 6849™ is approved per BAC 5763.
<b>Turco® Vitro-Klene</b>	●	Powder Concentrated Immersion 60-75 g/L	Caustic ● ● ● ●	158°F/70°C to Boiling Point Varies as Needed	Turco® Vitro-Klene is a brown granular mixture formulated to remove drawing compounds, lube oil, rust preventive compounds, and other tenacious soils from ferrous and titanium alloys prior to vitreous enameling and other processes that require a high degree of cleanliness. Will provide a water-break-free surface when used as recommended. Corrosive to aluminum, cadmium and zinc alloys, and should not be used on these alloys. Approved to Boeing BAC 5749.

**Metal Preparation Process:**

1. Cleaning
2. Deoxidize
3. Etching
4. Conversion coating

**Typical Titanium Pretreatment Process:**

1. Aqueous clean with Turco® Ridoline® 4355™
2. Rinse
3. Alkaline clean (see above)
4. Acid etch with Turco® Nitradd (T-4104™)
5. Rinse
6. Conversion coat with Alodine® 5200™

**Typical Aluminum Pretreatment Process:**

1. Aqueous degrease with Turco® Ridoline® 4355™ or Turco® 6849™
2. Rinse
3. Alkaline clean with Turco® Altrex® 24™ or Turco® Ridoline® 4355™
4. Rinse
5. Alkaline etch with Turco® Mil Etch™ or Turco® Aluminux® Etch L™
6. Rinse
7. Deoxidize with Turco® 6/16™ Deoxidizer or Turco® Deoxalume® 2310™
8. Rinse
9. Conversion coat with Alodine® T5900™, Alodine® 5200™, Alodine® 1200S™, Alodine® 1600™, or Anodize
10. Rinse

# SURFACE TREATMENTS

## Deoxidizers, Etchants, CIC Remover and Maskants



	Metal Processing Lines	Jet Engine Cleaning	Aircraft Parts Cleaning	Aircraft Depaint & Repaint	Coolants	Aircraft Appearance	Aircraft Protection	Composite Applications	Maintenance & Production Aides	Consistency	Form	How to Apply	Mix Ratio (product:water)	Chemistry	Aluminum	Composite Materials	Magnesium	Stainless Steel	Titanium	Ferrous	Non-Ferrous	See Technical Data Sheet	Temperature	Time	Description		
Product	Applications									Characteristics				Substrate						Operation		Description					
<b>DEOXIDIZERS</b>																											
Turco® Aldox® V™	●									Liquid	Concentrated	Immersion or Spray	13-17% Turco® Aldox® V™ 23-27% Nitric Acid	Non-Chrome	●										50°F-120°F 10°C-50°C	Varies with Alloy	Turco® Aldox® V™ is a brown liquid formulated to deoxidize, desmut, and lightly etch aluminum alloys by spray or immersion methods. Turco® Aldox® V™ is free of chrome and is ideal for processing alloys that require low surface resistance prior to anodizing, conversion coating, bonding or welding. It is approved by Boeing BAC 5765.
Turco® Deoxalume® 2310™	●									Liquid	Concentrated	Immersion or Spray	10-20% Turco® Deoxalume® 2310™ by Volume, 25-30% Nitric Acid	Acidic Non-Chrome	●										60°F-90°F 16°C-32°C	2-10 minutes	Turco® Deoxalume® 2310™ is a chromium-free, concentrated acidic liquid product specifically formulated for deoxidizing and desmutting wrought aluminum alloys. Extremely effective in removing surface oxides, discolorations due to heat treatment or thermal deburring, and smut which develops during alkaline etching and chemical milling. Develops a stain-free surface on aluminum alloys and is used prior to finishing operations such as anodizing, chemical milling, penetrant dye inspection and spot or resistance welding. Meets the deoxidizing requirements of U. S. Military Specification MIL-W-6858C, Paragraph 4.2 and many other aerospace specifications.
Turco® 6™ Deoxidizer Makeup Turco® 16™ Deoxidizer Replenisher	●									Liquid	Concentrated, Two Packages	Immersion or Spray	For 100 Gals Solution 5 gal Turco® 6™ Deoxidizer 10 gal Nitric or 5 gal Sulfuric Acid	Chromated	●										60°-90°F 16°-32°C	Immersion: 1-20 minutes Spray: 30 seconds to 3 minutes	The Turco® 6™/16™ Deoxidizer process primarily utilizes two liquid products, Turco® 6™ Deoxidizer Makeup and Turco® 6™/16™ Deoxidizer Replenisher. These are added to either dilute nitric acid or dilute sulfuric acid to produce an efficient production bath for the deoxidizing, desmutting or acid etching of aluminum and its alloys. Process approved for BAC 5765, Solution 27 (A,B & C).
Turco® Liquid Smut-Go® NC™	●									Liquid	Concentrated	Immersion or Spray	18%-20% in Water	Acidic Non-Chrome	●										50°F-100°F Optimum 25°C	1-10 minutes	Turco® Liquid Smut-Go® NC™ is a dark brown liquid formulated to deoxidize and desmut aluminum alloys by spray or immersion methods. Chromate-free. Ideal for processing alloys that require low surface resistance prior to anodizing, conversion coating, bonding or welding. Nominal etch rates for most aluminum alloys will normally be in the range of 0.02-0.10 mils/surface/hr.
Turco® Nitradd (T-4104™)	●									Liquid	Concentrated	Immersion	Varies with Alloy	Acidic	●		●	●							Depends on Alloy. See Technical Data Sheet.	See Technical Data Sheet	Turco® Nitradd (T-4104™) is a clear, colorless liquid acidic compound designed to be added to nitric acid/water solutions to enhance the descaling and pickling of stainless steels and heat resistant alloys, including titanium alloys, by immersion methods. It has also been found to be effective in descaling or pickling cobalt, chrome, nickel and copper-based alloys.
<b>ETCHANTS</b>																											
Aluminux® Etch L™	●									Liquid	Concentrated	Immersion	10-15 gals per 100 gals water	Alkaline	●					●					100°F-160°F 38°C-71°C	2-10 minutes	Aluminux® Etch L™ is a concentrated liquid alkaline product developed to produce a fine satin etch on aluminum and its alloys. It offers an exceptionally uniform etch and extended bath life. Approved for Boeing BAC 5786 use.
Turco® Alumiprep® 33™	●		●							Liquid	Concentrated	Immersion, Brush or Spray	Immersion: 1:3 Brush: 1:2 to 5 Spray: 1:3	Phosphoric-Acid-Based	●										Ambient to 120°F / 49°C	-	Turco® Alumiprep® 33™ is a non-flammable phosphoric acid-based cleaner, brightener and prepaint conditioner for aluminum. It should not be used on high copper bearing aluminum alloys or aluminum castings. Cleaning with Turco® Alumiprep® 33™ produces a chemically clean and corrosion-free aluminum surface.
Turco® Metal Glo #6™			●							Liquid	Concentrated	Brush or Spray	Full Strength or 1:1	Acid, Solvent	●										Ambient to 120°F / 49°C	Varies with Temperature	Turco® Metal Glo #6™ is a non-flammable, tri-acid, detergent-solvent-based cleaner, brightener, deoxidizer and prepaint conditioner for aluminum. It contains viscosity builders that allow for added contact time for vertical surfaces. Produces a chemically clean (water-break-free) and streak-free surface when used according to directions. Can be used to clean, deoxidize and brighten aluminum surfaces prior to welding, painting or to prepare the surface for a subsequent conversion coating. Meets the requirements of U.S. MIL-C-38334A, Amend. 1, Type 1, Class 1. Listed on QPL. Turco® Metal Glo #6™ can be used on all aircraft metals, except magnesium and high strength steel. This product is non-crazing to acrylics and can be used over well-bonded paints.
Turco® Metal Glo FF (Concentrate) Turco® Metal Glo FF RTU			●							Liquid	Concentrated	Brush or Spray	Full Strength or 1:2	Acid, Solvent	●										See Technical Data Sheet	See Technical Data Sheet	Turco® Metal Glo FF is a non-flammable, non-fluoride, acid-based cleaner, brightener, deoxidizer and prepaint conditioner for aluminum. Turco® Metal Glo FF contains viscosity builders that allows for added contact time enabling this product to remove corrosion products from horizontal and vertical surfaces. Cleaning with deoxidizing produces a chemically clean (water-break-free) and streak-free surface.
Turco® Mil Etch®	●									Powder	Concentrated	Immersion	25-50 lbs per 100 gals Water	Alkaline	●					●					100°F-160°F 38°C-71°C	5-10 minutes	Turco® Mil Etch® is a granular alkaline product formulated to produce a fine satin or frosted etch on aluminum and its alloys. The working solution develops a low level foam blanket to prevent caustic mist from escaping into the workplace. Provides outstanding sequestering action, which prevents build-up of scale and sludge on tank walls and heating coils. These benefits eliminate the need for expensive descaling of the tank and the heating coils and assures efficient heating of the etch bath. Approved for use under Boeing BAC 5786.
Turco® Nova EC-202 L™	●									Liquid	Concentrated	Immersion	4%-10% in Water	Alkaline	●					●					120°F-180°F 50°C-85°C	1-5 minutes	Turco® Nova EC-202 L™ 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. Produces a stable foam blanket which effectively entraps the gases evolved during the etching operation. Contains a special blend of detergents and dispersing agents to minimize hard scale formation and, therefore, makes equipment maintenance a much easier and less costly operation. Approved for use under Boeing BAC 5786.
Turco® WO #1™	●		●							Liquid	Concentrated	Immersion or Spray	5%-25% in Water	Acidic	●		●								Ambient to 140°F/60°C	3-10 minutes	Turco® WO #1™ is clear, colorless liquid acid cleaner and deoxidizer designed for use on aluminum and aluminum alloys. It may be used in either dip, spray and hand wipe processes.
<b>CIC REMOVER</b>																											
Turco® 5948-DPM™ Thick	●	●				●				Liquid	Concentrated	Spray or Mop	Use as Received	Alkaline, Water-Based	●		●	●	●	●					Greater than 65°F/18°C	5-15 minutes	Turco® 5948-DPM™ Thick is an environmentally advantaged thixotropic, water-based, heavy duty aircraft cleaner. It is a blue, viscous, alkaline, concentrated compound formulated to effectively cling to painted and unpainted aircraft exterior and interior surfaces. Ideally suited for use on all jets, especially in baggage bins, flap and wheel well areas, and on engines before overhaul.
<b>MASKANTS</b>																											
Turcoform 540-R™ Maskant	●									Liquid	Concentrated	Dip	See Technical Data Sheet	Styrene-Butadiene-Based	●	●	●	●	●						See Technical Data Sheet	See Technical Data Sheet	Turcoform 540-R™ Maskant is a one-package, hand-strippable protective coating which possesses a high degree of chemical resistance. This product gives outstanding protection against the corrosive action of etchant solutions and was specially developed for the chemical milling of aluminum and titanium.
Turcoform 5580-G™ Maskant	●									Liquid	Ready-to-Use	Spray, Dip, Brush	Use as Received	Styrene-Butadiene-Based	●	●	●	●	●						See Technical Data Sheet	See Technical Data Sheet	Turcoform 5580-G™ Maskant is a green, hand-strippable coating formulated to provide protection to metal surfaces during successive fabrication operations, such as forming, chemical cleaning, conversion coating, Type I and Type II anodizing, adhesive bonding and machining.

DEOXIDERS

ETCHANTS

CIC REMOVER

MASKANTS



# SURFACE TREATMENTS

## Conversion Coatings



CONVERSION COATINGS

CONVERSION COATINGS

Product	Applications										Characteristics				Substrate										Operation		Description											
Product	Metal Processing Lines	Jet Engine Cleaning	Aircraft Parts Cleaning	Aircraft Depaint & Repaint	Coolants	Aircraft Appearance	Aircraft Protection	Composite Applications	Maintenance & Production Aides	Consistency	Form	How to Apply	Mix Ratio (product:water)	Chemistry	Aluminum	Composite Materials	Magnesium	Stainless Steel	Titanium	Ferrous	Non-Ferrous	See Technical Data Sheet	Temperature	Time	Description													
<b>CONVERSION COATINGS</b>																																						
<b>Alodine® 120™ Brush Kit</b>	●			●									Liquid	Ready-to-Use Two-Part Kit	Kit	Use as Received	Chromate	●															Ambient	Until Dry	Alodine® 120™ Brush Kit contains products formulated for treating aluminum to conform to MIL-C-5541C, Class 1A. This kit contains sufficient chemicals for cleaning and coating approximately 100 square feet of aluminum surface when used under normal conditions and in accordance with the directions.			
<b>Alodine® 600™</b>	●			●									Powder	Concentrated	Immersion or Spray	12.5 lbs per 100 gals Water	Chromate No Cyanide	●															70°F-100°F 21°C-38°C	1-5 minutes	Alodine® 600™ is a powdered chemical used to produce a chromate conversion coating on aluminum and its alloys, which ranges in color from light, iridescent gold to tan. Alodine® 600™ can be applied by immersion or spray method, does not contain complex cyanides, and is particularly recommended where a low dielectric resistance coating is desired. Approved under MIL-DTL-81706B for use by Application Methods A and C, classes 1A and 3. Listing on QPL 81706 indicates its acceptance under the MIL-C-5541 document of current issue.			
<b>Alodine® 600™ RTU</b>				●									Liquid	Ready-to-Use	Immersion or Spray	Use as Received	Chromate No Cyanide	●															70°F-100°F 21°C-38°C	Immersion: 2-5 minutes Spray: 15-30 seconds	Alodine® 600™ RTU 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 bonds paint well.			
<b>Alodine® 1000™ RTU</b>	●			●									Liquid	Ready-to-Use	Brush or Spray	Use as Received	Chromate	●															Ambient	1-3 minutes	Alodine® 1000™ RTU is a ready-to-use, aqueous solution for producing a protective coating on aluminum and its alloys. 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 Alodine® coating chemicals.			
<b>Alodine® 1200S™</b>	●			●									Powder	Concentrated	Immersion	6.3 lbs per 100 gals Water	-	●															70°F-100°F 21°C-38°C	15 seconds - 3 minutes	Alodine® 1200S™ is a powdered chemical used to produce a protective coating on aluminum to minimize corrosion and provide an improved bond for paint. Alodine® 1200S™ coating is chemically listed on Qualified Product List QPL-81706, and is an approved material to produce Class 1A and Class 3 coatings, bare or painted, in accordance with Military Specifications MIL C-5541C.			
<b>Alodine® 1201™</b>	●			●									Liquid	Brush: Ready-to-Use	Brush or Immersion	Immersion: 33 parts - Alodine® 1201™ 67 parts - Water	Chromic-Acid-Based	●																Ambient to 100°F / 38°C	2-5 minutes	Alodine® 1201™ is a nonflammable, chromic-acid-based, coating chemical that will produce a chrome conversion coating on aluminum and its alloys.		
<b>Alodine® 1500™</b>	●												Liquid	Concentrated	Immersion or Spray	1 gal per 100 gals Water	-	●															70°F-160°F 21°C-71°C	IMMERSION: 2-5 minutes SPRAY: 15-30 seconds	Alodine® 1500™ is a liquid chemical used to produce a protective coating on aluminum or aluminum alloys. The coating provides protection for aluminum and is an excellent bond for clear organic coatings. Alodine® 1500™ should be used when the characteristic aluminum appearance must be retained. Listed on the register for QPL-MIL-C-81706 and is approved to be used by Methods A and C (spray and immersion processing) to produce class 3 coatings in accordance with Military Specification MIL-C-5541 (current issue). May also be used to process aluminum under Specification MIL-S-5002.			
<b>Alodine® 1600™ Alodine® 1600™ Additive</b>	●												Liquid	Concentrated, Two Packages	Immersion or Spray	0.65 gals - Alodine® 1600™ 1.3-2.0 gals - Alodine® 1660™ per 100 gals Water	Chromate	●																60°F-130°F 16°C-54°C	1-5 minutes	Alodine® 1600™ 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. Alodine® 1600™ does not contain complex cyanides. Approved for use under MIL-DTL-81706B, formally MIL-C-81706, Classes 1A and 3, Form, I, Method C and Boeing BAC-5719.		
<b>Alodine® 5200™</b>	●												Liquid	Concentrated	Immersion or Spray	1.5-7.5 gals per 100 gals Water	Organo-Metallic	●	●	●														70°F-120°F 21°C-49°C	1-5 minutes	Alodine® 5200™ treatment is a chromium-free product specifically formulated for treating non-ferrous alloys. Spray or immersion applications may be used. This process provides an excellent base for bonding of adhesives and organic finishes.		
<b>Alodine® 5700™</b>				●									Liquid	Ready-to-Use	Spray	Use as Received	Organo-Metallic	●	●	●														Ambient to 100°F/38°C	2-5 minutes	Alodine® 5700™ 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.		
<b>Alodine® Magnesium Treatment Kit</b>	●			●									Liquid	Ready-to-Use Two-Part Kit	Kit	Use as Received	Chromate		●														Ambient	Until Dry	The Alodine® Magnesium Treatment Kit 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, corrosion repair processes of magnesium alloys.			
<b>Alodine® T 5900™</b>	●			●									Liquid	Concentrated	Spray, Brush or Immersion	Alodine® T 5900™ 5.0 gals per 100 gals Alodine® T 5900™ Toner 1.0 gals per 100 gals	Tri-Chrome	●	●	●																70°F-90°F 21°C-32°C	7-10 minutes	Alodine® T 5900™ 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. The process provides bare ASTM-B117 salt spray resistance and it serves as an excellent base for bonding of paint and adhesives. Neither the product itself, nor the conversion coating developed by the process, contain hexavalent chromium. Alodine® T 5900™ can be used in immersion or pressure spray washers. Alodine® T 5900™ is approved to MIL-DTL-81706B.
<b>Alodine® T 5900™ RTU</b>	●			●									Liquid	Ready-to-Use	Spray, Brush or Immersion	Use as Received	Tri-Chrome	●	●	●														70°F-90°F 21°C-32°C	7-10 minutes	Alodine® T 5900™ RTU 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 Henkel product is formulated as a ready-to-use material for manual spray applications. The process provides bare ASTM-B-117 salt spray resistance and it also serves as an excellent base for organic finishes and adhesives. Alodine® T 5900™ RTU is approved to MIL-DTL-81706B.		
<b>Alodine® 871™ Touch-N-Prep® Coating</b>	●												Liquid	Ready-to-Use	Pen	Use as Received	Tri-Chrome	●															Ambient	Until Dry	Alodine® 871™ Touch-N-Prep® Coating is a non-hexavalent, chromium, 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. Alodine® 871™ Touch-N-Prep® Coating is formulated for both bare corrosion protection, such as ASTM 921-02, and bonding applications when combined with organic coatings or structural adhesives.			
<b>Alodine® 1132™ Touch-N-Prep® Coating</b>	●			●									Liquid	Ready-to-Use	Pen	Use as Received	Chromate	●															Ambient	Until Dry	Alodine® 1132™ Touch-N-Prep® Coating is a felt-tipped marker that provides a chromate conversion coating on aluminum surfaces prior to painting. Meets MIL-DTL-81706B, Class 1A & 3, Form VI, Method D. Ideal for coating repair work.			



# SURFACE TREATMENTS

## Accessory Shops and Chemical Specialties

Product	Applications										Characteristics				Substrate						Operation		Description					
	Metal Processing Lines	Jet Engine Cleaning	Aircraft Parts Cleaning	Aircraft Depaint & Repaint	Coolants	Aircraft Appearance	Aircraft Protection	Composite Applications	Maintenance & Production Aides	Consistency	Form	How to Apply	Mix Ratio (product:water)	Chemistry	Aluminum	Composite Materials	Magnesium	Stainless Steel	Titanium	Ferrous	Non-Ferrous	See Technical Data Sheet		Temperature	Time			
<b>ACCESSORY SHOPS</b>																												
<b>Turco® Aquasorb</b>	●	●											Liquid	Ready-to-Use	Immersion, Brush or Spray	Use as Received	Petroleum Solvent	●	●	●	●	●	●			Ambient	Approx. 5 minutes	Turco® Aquasorb is a clear, amber liquid, formulated to impart short-term rust and corrosion protection to both ferrous and nonferrous metals during manufacturing and overhaul. It displaces water from metal surfaces, leaving an oil-like protective film, which prevents corrosion and rusting under humid conditions. Ideal for post oil treatments, such as phosphate, and is often used on aircraft engine and wheel bearings and similar components after rework.
<b>Turco® Aviation</b>	●		●										Powder	Concentrated	Immersion or Spray	Immersion: 30-60 g/L Spray: 7.5-15 g/L	Alkaline	●	●	●	●	●	●			Immersion: 167°F-185°F 75°C-85°C Spray: 158°F-167°F 70°C-75°C	Immersion: 2-10 minutes Spray: 30 seconds to 2 minutes	Turco® Aviation is a white, granulated, alkaline compound formulated for the removal of mill inks, oils, shop soils and other difficult-to-remove soils from aluminum, steel, copper, magnesium, cadmium and nickel alloys.
<b>Turco® 4215 NC-LT™</b>	●	●	●										Powder	Concentrated	Immersion, Spray or Ultrasonic	Immersion: 45-60 g/L Spray: 7-15 g/L Ultrasonic: 3-15 g/L	Mildly Alkaline	●	●	●	●	●	●			113°F-131°F 45°C-55°C	Immersion: 5-10 minutes Spray: 2-4 minutes	Turco® 4215 NC-LT™ is a white, granular mix developed for cleaning ferrous and nonferrous alloys by spray, immersion and ultrasonic methods at low temperatures. Ideal for cleaning fuel and hydraulic components and for cleaning metals prior to metal bonding.
<b>Turco® 5805™</b>		●	●										Liquid	Ready-to-Use	Spray	Use as Received	Alkaline	●	●	●	●	●	●			Ambient	15-30 minutes	Turco® 5805™ is a clear, viscous liquid, developed specifically for cleaning and brightening jet engine thrust reversers, cowling, landing gears, etc., during overhaul.
<b>Turco® 5948-DPM™ Thick</b>		●	●				●						Liquid	Concentrated	Spray or Mop	Use as Received	Alkaline, Water-Based	●	●	●	●	●	●			Greater than 65°F/18°C	5-15 minutes	Turco® 5948-DPM™ Thick is an environmentally advantaged, thixotropic, water-based, heavy duty aircraft cleaner. It is a blue, viscous, alkaline, concentrated compound formulated to effectively cling to painted and unpainted aircraft exterior and interior surfaces. Ideally suited for use on all jets, especially in baggage bins, flap and wheel well areas, and on engines before overhaul.
<b>Turco® 6802™</b>		●											Liquid	Ready-to-Use	Immersion	Use as Received	Solvent Based	●	●	●	●	●	●			Maximum 257°F/125°C	Time for Wax to Melt or Dissolve	Turco® 6802™ is a clear, amber liquid developed to remove platter's wax (such as Rigidex) and similar low melting stop-off compounds by immersion in the heated product. It is free of chlorinated hydrocarbons, phenols and chromate. Turco® 6802™ can be used on all metals.
<b>Turco® 9045-6™</b>		●	●										Liquid	Ready-to-Use	Immersion	Use as Received	Water-Based			●	●	●				104°F-140°F 40°C-60°C	30 minutes to 2 hours	Turco® 9045-6™ is a unique water-based, carbon remover used to remove carbon deposits and difficult-to-remove soils found in aircraft engines. It cleans engine blocks, pistons, carburetors, transmissions, and brake assemblies. It is an effective carbon remover for jet engine overhaul. It may also remove some paints.
<b>CHEMICAL SPECIALTIES</b>																												
<b>P3® 2469™ White Tacky Masking</b>													Liquid	Concentrate	Airless Spray	N/A	Solvent	●	●	●	●	●	●			N/A	N/A	The P3® 2469™ White Tacky Masking is a very tacky, white, water-based, paint spray booth wall masking designed to be removed by scraping or by cold water spray. This product is used to protect booth walls and center track conveyor covers from paint overspray. It substantially reduces the amount of time necessary to remove paint overspray. It also reduces the amount of paint strippers that may be used in booth cleaning operations. P3® 2469™ White Tacky Masking is bright white and light reflective to maximize booth illumination. The masking remains very tacky and moist, making it especially suited for modular paint booths and robotic painting operations. The masking is readily removed with low to moderate pressure, water spray or manual scraping. P3® 2469™ White Tacky Masking is designed for use in water spray booths. For dry booths, consult your representative for a peelable booth masking.
<b>P3® 2485A™ Clear Masking</b>													Liquid	Concentrate	Airless Spray	N/A	Solvent	●	●	●	●	●	●			N/A	N/A	P3® 2485A™ Clear Masking is used as a water removable, temporary protective coating for spray booth windows, walls, and grates where overspray accumulation must be readily removed. This clear coating is designed to not alter the appearance of the original substrate on which it was applied. The composition of the masking inhibits the rusting of steel. P3® 2485A™ Clear Masking forms a non-clouding flexible film. For dry booths, consult your representative for a peelable booth masking.
<b>P3® 2455™ Baffle Coating</b>													Paste	Concentrate	Airless Spray/Paste	N/A	Waterborne	●	●	●	●	●	●			N/A	N/A	P3® 2455™ Baffle Coating is a water-based, thickened, blue coating for the protection of paint or unpainted surfaces from scratches, chips and environmental effects. An alkaline material, such as an alkaline cleaner, can remove the coating.
<b>Parcosol® 283™</b>													Liquid	Concentrate	Wipe/Internally Through Equipment	N/A	Solvent	●	●	●	●	●	●			N/A	N/A	Parcosol® 283™ is HAPs Free (Hazardous Air Pollutant), 2°F flash point, organic solvent blend used for internal and external cleaning of solvent-borne paint application equipment. The blend contains a synergistic combination of solvents, which results in decreasing the time necessary to dissolve 1K or 2K solvent-based paints. Parcosol® 283™ is specifically formulated with components that can extend or prevent the gel point of 2K paint systems. The low viscosity, rapid evaporation rate, and aggressive cleaning characteristics allow for a wide range of uses. It is necessary to observe all safe handling practices, as this material is extremely flammable.
<b>Parcosol® 307™</b>													Liquid	Concentrate	Wipe/Internally Through Equipment	N/A	Solvent	●	●	●	●	●	●			N/A	N/A	Parcosol® 307™ is HAPs compliant (Hazardous Air Pollutant), 60°F flash point, organic solvent blend used for internal and external cleaning of solvent-borne paint application equipment. The blend contains a combination of solvents, which results in decreasing the time necessary to dissolve solvent-based paints. The low viscosity, rapid evaporation rate, and aggressive cleaning characteristics allow for a wide range of uses. The solvent blend resistivity is greater than 1.0 Mohm making it safe for critical electrostatic equipment applications. It is necessary to observe all safe handling practices, as this material is extremely flammable.
<b>Parcosol® 577WB™</b>													Liquid	Concentrate	Wipe/Internally Through Equipment	10%-50%	Waterborne/Amine	●	●	●	●	●	●			N/A	N/A	Parcosol® 577WB™ is a HAPs Free, low VOC, water soluble proprietary activator/amine purge blend used for internal and external cleaning of waterborne paint application equipment. The new product is specifically formulated to work more effectively at removing wet, semi-dry and dry waterborne paint from bell or air atomized paint delivery equipment. Its aggressive cleaning characteristics allow for a wide range of uses to clean or remove waterborne paint. The cleaning solution works effectively both internally and externally to clean bell atomizing and air atomized spray caps. This product is very low foaming, making it compatible with most paint detachment processes. The Parcosol® 577WB™ cleaning ability improves with higher temperature and concentration levels. Parcosol® 577WB™ has been specifically formulated to work aggressively at room temperature versus other typical waterborne purge products. This product has been formulated to aid in lubricity and corrosion resistance to aluminum to prolong the life of crystal cap wash boxes or aluminum bells. It is necessary to observe all safe handling practices.
<b>P3® 2474™ Peelable Masking</b>													Liquid	Concentrate	Roller/Brush	N/A	Waterborne	●	●	●	●	●	●			N/A	N/A	P3® 2474™ Peelable Masking is a white, waterborne, low VOC material designed for easy application to walls and floors of paint spray booths. The resultant film protects the walls and floors of the spray booth from paint overspray and yet maintains its integrity by not allowing solvent penetration. It can be quickly peeled from any surface, even when heavily laden with overspray.
<b>P3® 2486™ Peelable Masking</b>													Liquid	Concentrate	Roller/Brush	N/A	Waterborne	●	●	●	●	●	●			N/A	N/A	P3® 2486™ Peelable Masking is a gray, waterborne, zero VOC material designed for easy application to walls and floors of paint spray booths and surrounding area. The resultant film protects the walls and floors of the spray booth area from paint overspray and yet maintains its integrity by not allowing solvent penetration. It can be quickly peeled from any surface, even when heavily laden with overspray.
<b>P3® 2498™ Peelable Masking</b>													Liquid	Concentrate	Roller/Brush	N/A	Waterborne	●	●	●	●	●	●			N/A	N/A	P3® 2498™ Peelable Masking is a clear, waterborne, low VOC material designed for easy application to walls and floors of paint spray booths. The resultant film protects the walls and floors of the spray booth from paint overspray and yet maintains its integrity by not allowing solvent penetration. It can be quickly peeled from any surface, even when heavily laden with overspray.
<b>P3® 116™ Saf-T-Clean</b>													Liquid	Concentrate	Mop/Scrubber	10%-50%	Waterborne	●	●	●	●	●	●			N/A	N/A	P3® 116™ Saf-T-Clean is a low to zero foam, HAPs free, non-corrosive (pH<12) water-based cleaner for uncured paint. Test data shows significantly better cleaning performance at all dilution levels than the P3® 113™ Saf-T-Clean product line.
<b>P3® 104™ Saf-T-Clean</b>													Liquid	Concentrate	Mop	N/A	Solvent	●	●	●	●	●	●			N/A	N/A	P3® 104™ Saf-T-Clean is a low odor, blended solvent for removal of paints and other soils from the floor in the spray booth area of an automotive assembly plant. It is usually applied by hand using a sponge, cloth or mop.
<b>P3® 2226™ Maintenance Cleaner</b>													Liquid	Concentrate	Mop/Scrubber	10%-50%	Waterborne	●	●	●	●	●	●			N/A	N/A	P3® 2226™ Maintenance Cleaner is a liquid cleaner for the removal of soils from floors, walls, windows, machinery and other hard surfaces. It is designed to leave no visible residue if a water rinse does not follow the cleaning operation. P3® 2226™ Maintenance Cleaner is usually applied manually by sponge, cloth or mop, but it may also be used in floor scrubbing machines. P3® 2226™ Maintenance Cleaner is safe on all commonly encountered metals, including aluminum and zinc.
<b>P3® 2227A™ Oven Cleaner</b>													Liquid	Concentrate	Airless Sprayer	N/A	Waterborne	●	●	●	●	●	●			N/A	N/A	P3® 2227A™ Oven Cleaner is especially formulated for removal of e-coat, primer and top coat resins, plasticizers and other charred, hard-crusted soils found in the ovens of automotive and general industrial plants. This material is safe for use on aluminum and galvanized surfaces.



- Typical Paint Stripping Process:**
1. Protect surfaces that will not be stripped.
  2. Apply either an acid, alkaline, or peroxide paint stripper to surface. See above list.
  3. Agitate paint surface with stiff brush. Squeegee off loosened paint and rinse.
  4. Follow with Turco® 5948-DPM™ to wash prior to etching.
  5. Rinse.
  6. Use Turco® Metal Glo #6™ to etch metal prior to conversion coating. Follow Turco® Metal Glo #6™ application instructions.

# SURFACE TREATMENTS

Paint Strippers, TPC Remover, and Machine and Grinding Fluids



PAINT STRIPPERS

PAINT STRIPPERS

TPC REMOVER

TPC REMOVER

MACHINE & GRINDING FLUIDS

MACHINE & GRINDING FLUIDS

	Metal Processing Lines	Jet Engine Cleaning	Aircraft Parts Cleaning	Aircraft Depaint & Repaint	Coolants	Aircraft Appearance	Aircraft Protection	Composite Applications	Maintenance & Production Aides	Consistency	Form	How to Apply	Mix Ratio (product:water)	Chemistry	Aluminum	Composite Materials	Magnesium	Stainless Steel	Titanium	Ferrous	Non-Ferrous	See Technical Data Sheet	Temperature	Time	Description	
																										Product
<b>PAINT STRIPPERS</b>																										
	Turco® 1270-6™	●	●	●						Liquid	Ready-to-Use	Spray	Use as Received	Alkaline	●	●							Ambient	Varies	Turco® 1270-6™ 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. Turco® 1270-6™ was developed as a paint softener to be used in combination with blast media and high pressure water. However, with sufficient time and/or elevated temperatures, Turco® 1270-6™ can remove selected paint systems without the necessity for blasting or high pressure rinsing. It is particularly effective in selective removal of topcoats from painted composites which employ a "nylon type" intermediate barrier coat. For other systems, both the topcoat and the intermediate primer may be removed leaving the chromated primer intact.	
	Turco® 5351™ (T-5469™)	●	●	●						Liquid	Ready-to-Use	Immersion	Use as Received	Neutral Methylene-Chloride-Based	●	●	●	●	●	●	●		Ambient	Varies	Turco® 5351™ (T-5469™) is a yellow, viscous paint remover developed to remove epoxy, polyurethane and similar coatings from metal surfaces at ambient temperatures. Turco® 5351™ (T-5469™) clings to vertical and overhead surfaces and forms a surface film that helps retard evaporation and extend the working life of the stripper. Turco® 5351™ (T-5469™) should not be used on materials that are affected by chlorinated hydrocarbons.	
	Turco® 5351™ Thin	●	●							Liquid	Ready-to-Use	Immersion	Diphase Liquid – Add Entire Contents of Container to Stripping Tank	Neutral Methylene-Chloride-Based	●	●	●	●	●	●			Ambient	Varies	Turco® 5351™ Thin is an amber, diphase liquid developed to remove epoxy, polyurethane and other catalyzed finishes from ferrous and non-ferrous surfaces. Does not contain free acidic or alkaline constituents and is approved for use on high strength steels. Should not be used on materials that are affected by chlorinated hydrocarbons.	
	Turco® 5668™	●	●	●						Liquid	Concentrated	Immersion	Diphase Liquid – Add Entire Contents of Container to Stripping Tank	Alkaline	●	●	●	●	●	●			158°F-176°F 70°C-80°C	15-60 minutes	Turco® 5668™ is a diphase, liquid paint remover developed to remove resistant coatings, such as aluminized silicones, polyurethanes, acrylics, epoxies and chromated primers without using phenols, chromate, chlorinated solvents or acids. Ideal for the removal of PRC-1560M and PRC-1560MC coatings and is not detrimental to aircraft metals such as aluminum, titanium, magnesium, cadmium, conversion coatings, Dow coatings or ferrous alloys. Meets all requirements of MIL-R-83936B for removal of paint from aircraft wheels, landing gear components, and other aircraft and AGE components.	
	Turco® 6088-A™ Thin	●	●							Liquid	Ready-to-Use	Immersion	Use as Received	Acidic	●		●		●	●			68°F-140°F 20°C-60°C	As Needed	Turco® 6088-A™ Thin is a light amber, thin liquid developed for removing chemical resistant paints, such as epoxies, polyurethanes and epoxy primers, from aluminum alloys, mild steels and cast irons by immersion methods.	
	Turco® 6776-LO™	●	●	●						Liquid	Ready-to-Use	Spray	Use as Received	Acidic	●		●	●	●			Ambient	Varies	Turco® 6776-LO™ environmentally advantaged paint remover is low odor, thixotropic and developed for effective stripping of such resistant finishes such as epoxies, epoxy primers, polyurethanes, and similar catalyzed paints. Offers a significant advance in work place safety. Does not contain methylene chloride, chlorinated solvents, phenols, chromates, ammonia or amines. Complies fully with the aircraft/aerospace NESHAP. Can be used on aluminum, mild steel, cast iron, and titanium when used as directed. Not recommended for use on high strength steel or magnesium. Meets the "Effect on Metals" requirements of MIL-R-81903A.		
	Turco® 6776™ Thin	●	●							Liquid	Diphase Ready-to-Use	Immersion	Use as Received	Acid Activated	●		●		●				68°F-100°F 20°C-40°C	As Needed	Turco® 6776™ Thin is a light amber, diphase liquid developed for removing chemical resistant paints, such as epoxies, polyurethanes and epoxy primers, from aluminum alloys, mild steels and cast iron by immersion. It operates with an oil seal to reduce odors.	
	Turco® 6813-E™	●	●	●	●					Liquid	Ready-to-Use	Spray or Brush	Use as Received	Alkaline, Water-Based	●	●	●	●	●	●			Ambient	Varies	Turco® 6813-E™ water-based, environmentally advantaged, paint remover is a viscous, pink liquid formulated to remove multiple coats of aircraft paints, such as epoxies and polyurethanes, including such resistant primers as Koroflex. Clings to vertical as well as overhead surfaces and can be used on aluminum, magnesium, cadmium plated steels and other ferrous metals.	
	Turco® 6813-ED™	●	●							Liquid	Ready-to-Use	Spray or Brush	Use as Received	Alkaline, Water-Based	●	●	●		●				Ambient	Varies	Turco® 6813-ED™ is a viscous, blue-green liquid formulated to remove multiple coats of aircraft paints, such as epoxies and polyurethanes, including such resistant primers as Koroflex. Turco® 6813-ED™ paint remover clings to vertical as well as overhead surfaces and can be used on aluminum, magnesium, cadmium plated steels and other ferrous metals.	
	Turco® 6877™	●	●	●						Liquid	Ready-to-Use	Spray	Use as Received	Acidic, Water-Based	●		●	●	●			Ambient	As Needed	Turco® 6877™ is a long acting, low odor, thixotropic paint remover developed for more effective stripping of resistant finishes such as epoxies, epoxy primers, polyurethanes, and similar catalyzed paints. Turco® 6877™ paint remover offers a significant advance in EA paint stripper technology. It remains wet and active for very long periods of time. Although acid activated, it has a very low odor. Turco® 6877™ can be used on aluminum, mild steel, cast iron, and titanium when used as directed. Turco® 6877™ is not recommended for use on high strength steel or magnesium. Turco® 6877™ meets the corrosion requirements of AMS 1376B when tested at ambient temperature.		
	Turco® 6881™	●	●	●						Liquid	Ready-to-Use	Spray	Use as Received	Peroxide Activated, Water-Based	●		●	●	●	●			Ambient	Varies	Turco® 6881™ environmentally advantaged paint remover is low odor, thixotropic, and activated by hydrogen peroxide. It was developed for effective stripping of resistant finishes such as epoxies, epoxy primers, polyurethanes, and similar catalyzed aircraft paints. Offers a significant advance in paint stripper technology. Complies fully with the aircraft/aerospace NESHAP. Can be used on aluminum, mild steel, high strength steel, and titanium when used as directed. Not recommended for use on magnesium. Meets the corrosivity requirements of TT-R-2918 except magnesium and cadmium.	
	Turco® 6930™ EA Stripper	●	●	●						Liquid	Ready-to-Use	Spray	Use as Received	Peroxide Activated, Water-Based	●		●	●	●	●			Ambient	Varies	Turco® 6930™ EA Stripper is an environmentally advantaged paint remover that is low odor, thixotropic, and activated by hydrogen peroxide. It was developed for effective stripping of resistant finishes such as epoxies, epoxy primers, polyurethanes, and similar catalyzed aircraft paints. Offers a significant advance in paint stripper technology. Complies fully with the aircraft/aerospace NESHAP. Can be used on aluminum, mild steel, high strength steel, cadmium plated steel and titanium when used as directed. Meets the corrosivity requirements of Federal Specification TT-R-2918A. Not recommended for use on magnesium.	
<b>TPC REMOVER</b>																										
	Turco® TPC Remover 88™								●	Liquid	Ready-to-Use	Spray or Brush	Use as Received	Mildly Alkaline, Water-Based	●		●	●	●	●			Ambient	5-15 minutes	Turco® TPC Remover 88™ is used in the first step of a three-step Henkel process designed to properly prepare aluminum and titanium airframes for painting. In this extremely important step, the Turco® TPC Remover 88™ chemistry thoroughly wets the TPC for film penetration, dissolves and swells the TPC polymer through solvency which breaks the film's bond to the metal and suspends the TPC pigmentation in the remover through dispersion. The Turco® TPC Remover 88™ chemistry is mildly alkaline and contains an effective corrosion inhibitor to protect exposed metal surfaces. The product's balanced chemistry is applied with standard hanger applicator systems. It is thickened to properly adhere to all exterior airframe surfaces yet it rinses more freely and completely than other TPC removers.	
	P3® Coating Remover 2588T™								●	Liquid	Ready-to-Use	Spray or Brush	Use as Received	Mildly Alkaline, Water-Based	●		●	●	●	●			Ambient	10-20 minutes	P3® Coating Remover 2588T™ is a water-based, moderately viscous and mildly alkaline product specially developed for the removal of temporary protective coatings (TPC) from treated and untreated aluminum and steel surfaces. Contains a corrosion inhibitor package, which helps in protecting bare metal surfaces. Its thixotropic nature provides excellent clinging on vertical surfaces to provide sufficient contact time for temporary protective coating removal. A unique combination of surfactants provides quick penetration and easy water rinsing.	
<b>MACHINE &amp; GRINDING FLUIDS</b>																										
	Multan® 5500™	●			●					Liquid	Concentrate	Circulation to Machine	5%-10% in Water	Synthetic	●		●	●	●				Do Not Freeze	-	Multan® 5500™ is an oil absorbing, true solution, synthetic fluid for moderate machining and grinding of ferrous and most aluminum alloys. Its low foam characteristics make it usable in high pressure applications, such as gun drilling or creep feed grinding.	
	Multan® 3105™	●			●					Liquid	Concentrate	Circulation to Machine	5%-10% in Water	Synthetic	●		●	●	●	●			Do Not Freeze	-	Multan® 3105™ is an oil rejecting, synthetic fluid for heavy machining and grinding of ferrous and non-ferrous substrates. It is also suitable for copper and other exotic alloys. It is highly preferred on aluminum, titanium and inconel machining.	
	Multan® B-400™	●			●					Liquid	Concentrate	Circulation to Machine	6%-10% in Water	Semi-Synthetic	●		●	●	●	●			Do Not Freeze	-	Multan® B-400™ is a bio-resistant, semi-synthetic, cutting fluid applicable on most substrates. Its unique lubrication and EP package make it highly suitable for light to heavy metal removal operations. Its high characteristic level of cleanliness and wetting keep tooling clean and sharp to improve and maintain tool life. Multan® B-400™ has been certified by an independent lab to be mycobacterium resistant.	
	Multan® B-451™	●			●					Liquid	Concentrate	Circulation to Machine	6%-10% in Water	Semi-Synthetic	●		●	●	●	●			Do Not Freeze	-	Multan® B-451™ is a bio-resistant, high EP, semi-synthetic fluid suitable for use on most substrates. Its unique lubrication and EP package make it highly suitable for heavy metal removal operations and harder to machine alloys, such as inconel. Multan® B-451™ has been certified by an independent lab to be mycobacterium resistant.	
	Multan® CR 26™	●			●					Liquid	Concentrate	Circulation to Machine	100%	Straight Oil	●		●	●	●				Do Not Freeze	-	Multan® CR 26™ is a medium viscosity, straight cutting oil for use in multi-metal applications. Its high EP level makes it especially suitable for broaching applications.	