



DEFENSE LOGISTICS AGENCY

AMERICA'S COMBAT LOGISTICS SUPPORT AGENCY



New GREEN Products for the Military Aviation Maintenance Community

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SCOPE

DLA Aviation Hazardous
Minimization & Green Products Branch
has made available new GREEN products for
the military aviation maintenance community
to address their green purchasing
requirements as required by law.



Agenda

- DLA
- Hazardous Minimization/Green Products Branch
- Why GREEN Products
- New GREEN Products
- Bio-based New GREEN Products
- Additional GREEN Products
- DOD E-MALL
- Conclusion



DLA

Defense Logistics Agency (DLA) supplies the nation's military services and several civilian agencies and allied forces with logistics, acquisition, and technical services in peace and in war, around the clock, around the world.



Defense Logistic Agency (DLA)

- DLA a global enterprise
- Provides 100% of food/med/clothing/construction items
- Supplies more than 80% of the military spare parts
- Supports more than 2100 weapon systems
- FY11 DLA had \$46.1 billion in sales and revenues
- FY11 foreign military sales totaled \$1.22 billion
- Manages 5 million NSN (National Stock Numbers)
- Manages the reutilization of military equipment
- Offers disposition services (horse story)
- Provides catalogs and other logistics information products
- Offers document automation and production services
- Humanitarian assistance



DLA—8 supply chains under 4 Primary Level Field Activities

- ✓ DLA Energy (Ft. Belvoir)
Energy
- ✓ DLA Land and Maritime (Columbus)
Land
Maritime
- ✓ DLA Troop Support (Philadelphia)
Subsistence
Clothing & Textile
Medical
Construction & Equipment
- ✓ DLA Aviation (Richmond)
Aviation



DLA Aviation Hazardous Min and Green Products Branch

- DLA Aviation Richmond under the Aviation Engineering Directorate.
- Established in March 2009.
- Facilitate the increased availability and use of green products by DLA Aviation customers.
- Provide technical assistance and guidance to the customers with respect to green products initiatives.



DLA Aviation Hazardous Min and Green Products Branch

- Partnership with the services and others on HAZMIN projects with the goal of reducing the hazardous material footprint through the development of product alternatives.
- Bio-based product development and demonstrations
- Makeup: engineers/chemists/marketing specialist
- FSC: 4235 hazardous materials spill cleanup eqpmt
6810 chemicals
6850 misc. chemical specialties
9150 oils, greases



DLA Aviation Hazardous Min and Green Products Branch, cont'd.

Contact information:

Greenline: 804-279-4060

DSN 695-4060

E-mail: GreenProducts@dla.mil



Why GREEN Product?

Because it's the LAW !!!

- Executive Orders, Regulations, FAR, etc., etc., etc.

What do they do?

- Improves worker's safety and health
- Reduce our dependence on imported oil
- Reduce operating/maintenance/disposal costs
- Reduce energy use, green house gas emissions, and waste to landfills
- Stimulates new markets and creates jobs
- Promotes environmental stewardship

SUSTAINABILITY !!!



Why GREEN Products? cont'd.

so....what is a **GREEN Product**?

An environmentally preferable product that has a lesser or reduced effect on human health and the environment creates less pollution and waste when compared to a competing product that serves the same purpose.





Why **GREEN** Products? cont'd.

ok, so....what would a **GREEN Product** be?

- Product with recycled content
- Product that is bio-based
- Product that is energy or water efficient
- Non-ozone depleting substances
- Low or non-toxic or hazardous chemicals
- Environmentally preferred products??
- Alternative fuel vehicles/alternative fuels



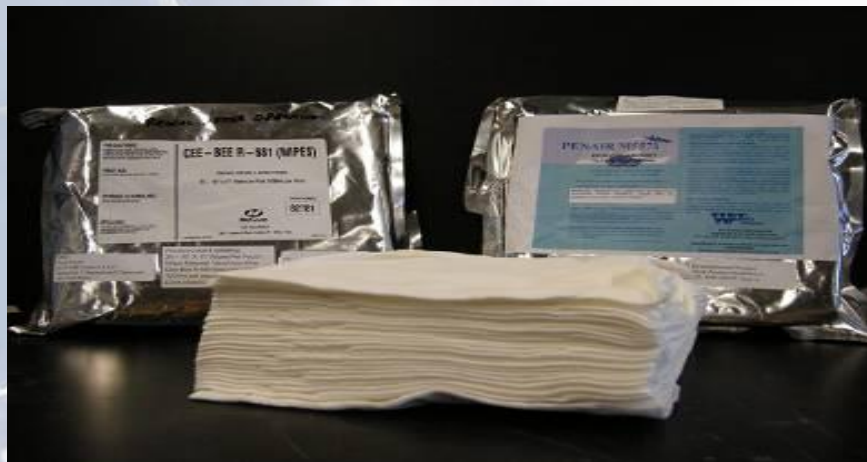
DLA Aviation Hazardous Min and Green Products Branch

- Partnership with our military services and others
- Demonstrations/validations of new green products
- Greenline: 804-279-4060
- DSN 695-4060
- E-mail: GreenProducts@dla.mil



New GREEN products (NAVAIR)

MIL-PRF-85570 aircraft spot cleaners



- 6850-01-578-4978 type I
- 6850-01-581-9413 type II
- 6850-01-587-3779 type I
- 6850-01-582-3708 type II

~~Mil-C-43616~~





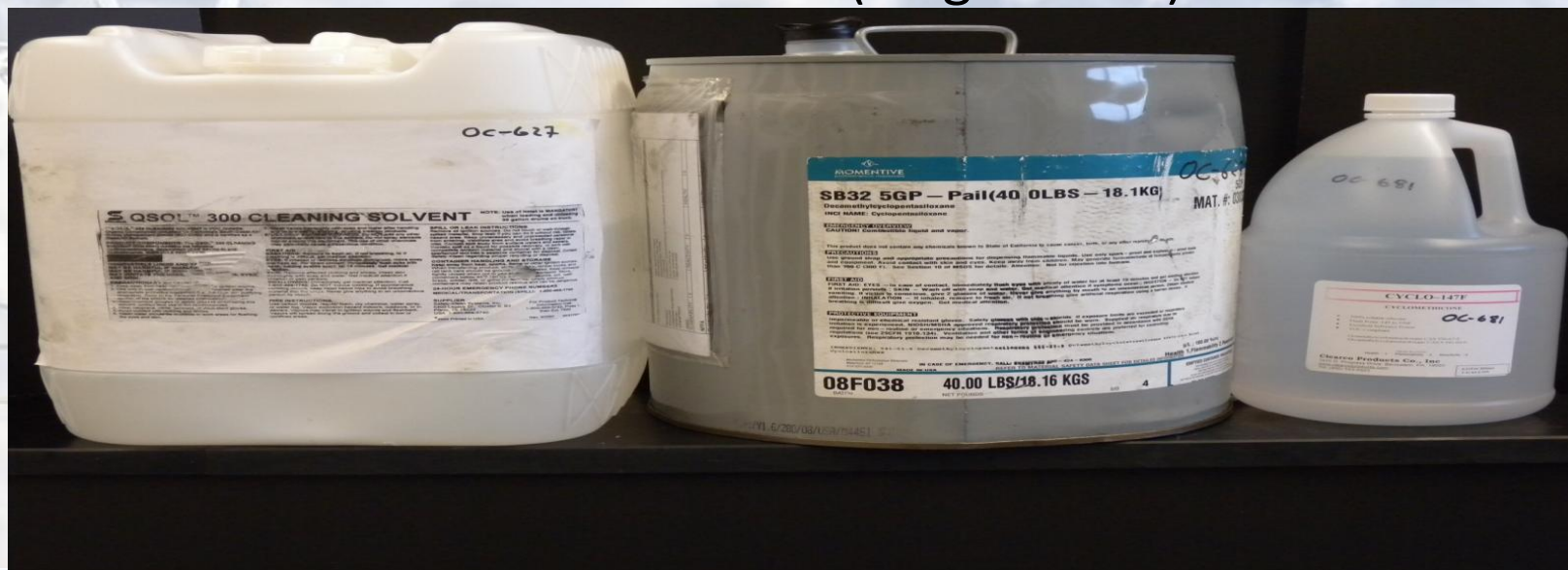
New GREEN products (NAVAIR), cont'd.

MIL-PRF-32295

non-aqueous, low VOC, HAP-free cleaner

TYPE I

- 6850-01-576-2676 (1 gal)
- 6850-01-576-2765 (5 gal)
- 6850-01-576-2736 (55 gal drum)





New GREEN Products (NAVAIR), cont'd.

MIL-PRF-29608 cleaning and cleaning-lubricant
compounds, electrical contact

- 6850-01-597-1998
- Product 3M NOVAC
- contact cleaner/lubricant
- Class L electronic graded
- silicone lubricant





New GREEN Products (NAVAIR), cont'd.

micro-mesh cloths

NSNs pending



cleaning with water only,
no chemicals, canopies,
windscreens, windows, optics,
and instruments



New GREEN Products (NAVAIR), cont'd.

MIL-DTL-81706 type II chrome-free pre-treatment applicator pen

- Existing products qualified only with hexavalent chromium
- Now have environmentally friendly non-hexavalent chromium
- Working on establishing NSN and up-dating PQD



New GREEN Products (NAVAIR), cont'd.

TT-R-2918 environmentally compliant chemical paint stripper

- Commercially available peroxide-assisted benzyl alcohol chemical paint strippers
- Looked at 18 products
- Developing new specification vs. revising old one
- Military services on board



New GREEN Products (NAVAIR & ARL), cont'd.

Cold Spray (kinetic metallization) for Magnesium structural aerospace components

- ✓ Unique solid-state deposition process which utilizes high velocity particles impinging upon a substrate to build up material.
- ✓ MIL-STD-3021, Materials Deposition, Cold Spray (4 Aug 08)
- ✓ NAVAIR finalizing powder qualifications leading to materials mil spec
- ✓ NAVAIR does corrosion repair of metalized coatings on aluminum and steel substrates. Also perform minor dimensional repair of aluminum & magnesium components.



New GREEN Products (AMCOM), cont'd.

Specification development for Tagnite (and Keronite and other similar processes)

- ✓ Surface treatment—foundation of all protection finishing systems
- ✓ Mg alloys vs Al in helicopter rotor gearboxes
- ✓ Light weight & strength & stiffness--improve performances
- ✓ Corrosion issues--increase maintenance & reduce readiness
- ✓ Present systems—hazardous mats & environmental issues
- ✓ Tagnite—MgO formed in electrolytic cell (anodize coating)
- ✓ Tagnite—replaces the Cr^{+6} surface treatments
- ✓ Tagnite—superior corrosion & abrasion resistance; helps prevent galvanic attack; superior paint adhesion



Bio-based New GREEN Products

Bio-based products

- ✓ Farm Security and Rural Investment Act (FSRIA) of 2002
 - BioPreferred Program
 - directs all military and civilian agencies to give preference to bio-based products in the procurement process
 - Bio-based product – “.....to be a commercial/industrial product (other than food or feed) that’s composed, in whole or part, of biological products or renewable domestic agricultural materials (plant, animal, marine) or forestry materials “.
- ✓ Federal Acquisition Regulation (FAR) 52.223-2
 - require Federal Agencies to give procurement preference to designated bio-based products as designated by USDA
- ✓ Executive Order 13514
 - directs all military and civilian agencies to give preference to designated bio-based products in the procurement process
- ✓ Green or bio-based products must be proven to meet gov’t requirements



Bio-based New GREEN Products (NDCEE), cont'd.

Collaboration with National Defense Center for Energy and Environment (NDCEE)

- ✓ Matched DLA Aviation managed commodities with the product categories designated by the USDA Federal Bio-Preferred Program
- ✓ ID bio-based product manufacturers
- ✓ Collected technical product information
- ✓ Evaluated against applicable Government specifications
- ✓ Developed product database
- ✓ Performed tri-service demonstrations of several green products at DOD facilities.....



Bio-based New GREEN Products, cont'd.

➤ Penetrating Oil (for loosening frozen metallic parts) A-A-50493B – Class A (bio-based)



- 9150-01-591-4213 type I – 1 pt. can
- 9150-01-591-4274 type I – 1 gal can
- 9150-01-591-4281 type I – 55 gal drum
- 9150-01-591-4247 type II – 11 oz.

- Joint Base Charleston, SC
- Army National Guard, SC
- Ft Jackson, SC
- Pentagon





Bio-based New GREEN Products, cont'd.

➤ Bio-based sorbent products (FSC 4235) from 5 manufacturers were field demonstrated

- Fort Jackson, SC
- SC Army National Guard
- Joint Base Charleston, SC
- Beaufort Marine Corps Air Station





Bio-based New GREEN Products, cont'd.

New NSNs resulted:

- 4235-01-599-3952 40 lb bag of absorbent
- 4235-01-599-4168 containment case unit

Other available sorbent NSNs:



- 42 HA (recycled content)
- 19 BW (bio-based)

Interested in having bio-based sorbents or bio-based penetrating oil demonstrated at your location?





Bio-based New GREEN Products (USDA), cont'd.

USDA soy-based toner project participation

Toner powder is 35% bio-based

Resin used in powder is 60% bi-based

Demonstration sites -----

- DLA Aviation (11 printers)
- Pentagon
- Dept. of Energy
- DoD in Crystal City
- Brook Haven Nat Lab (NY)





Bio-based New GREEN Products (NAVY), cont'd.

11 hydraulic fluids specifications

- MIL-PRF-87257 - Hydraulic Fluid, Fire Resistant; Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile
- MIL-PRF-32073 - Hydraulic Fluid, Bio-based
- MIL-PRF-17672 - Hydraulic Fluid, Petroleum Inhibited
- MIL-PRF-5606 - Hydraulic Fluid, Petroleum Base; Aircraft, Missile, and Ordnance
- MIL-PRF-46170 - Hydraulic Fluid, Rust Inhibited, Fire Resistant, Synthetic Hydrocarbon Base, NATO Code H-544
- MIL-PRF-6083 - Hydraulic Fluid, Petroleum Base, for Preservation and Operation
- MIL-H-19457 - Hydraulic Fluid, Fire-resistant, Non-neurotoxic
- MIL-H-81019 - Hydraulic Fluid, Petroleum Base, Ultra-low Temperature, Metric
- VV-C-846 - Cutting Fluids: Emulsifiable Oils
- A-A-59354 - Hydraulic Fluids, Petroleum Base, for Machine Tools
- A-A-59290 - Hydraulic Fluid, Arresting Gear



Additional GREEN Products

re-refined & re-refined closed loop oils and ODS gases

several well-established NSNs

www.aviation.dla.mil

- customers
- part kitting
- chemical/petroleum (for re-refined oils)
or
- industrial gases (for ODS)



DOD E-mail



✓ DLA electronic shopping tool

✓ “Green” products ID with

- “green” tree icon



- ENAC (environmental attribute code)—

(a two alpha character code that signifies product meets strict definable environmental standards and criteria from an approved certifying organization.)



Conclusion

- If America's military forces eat it, wear it, maintain eqpmt with it, burn it as fuel, DLA probably provided it.
- HAZMIN Green Product Branch facilitates the increased availability and use of green products.
- HAZMIN Green Product Branch collaborates with military services and others.
- Demonstrations/validations of new green products.
- New GREEN Products in the supply system.
- DOD E-MALL (green tree & ENAC)



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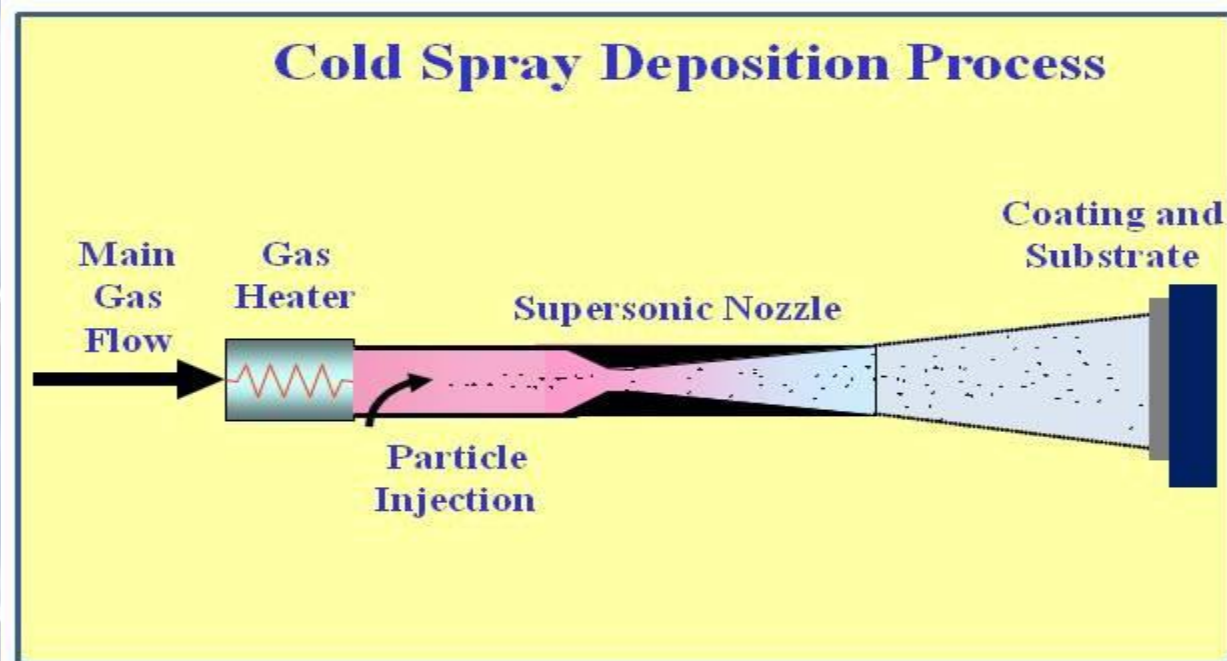
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Partnership—on-going work (ARL), cont'd.



- ✓ Surfacing by means of cold spray deposition.
- ✓ 'Cold' — temps of the gas jet and the powder material are low.
- ✓ Deposited by means of ballistic impingement upon a substrate.
- ✓ Metal powder particles size 5-100 μm are utilized.
- ✓ Injection into a high-velocity stream of gas.



Partnership—new products (NAVAIR) cont'd.

MIL-PRF-32295

non-aqueous, low VOC, HAP free cleaner

Type I – vapor pressure $\leq$ 7ml of Hg

Type II – vapor pressure $\leq$ 45 ml of Hg

Type III – VOC = 0 g/l, no vapor pressure limit



Oxygen cleaning solvent HCFH -225 (NASA)

- EPA approved solvent PFBI (perfluorobutyl iodide) as an acceptable substitute under SNAP.
- Substitute for commercial solvent AK-225
- Air Force worked to get it approved for the AF in Europe in 2008.
- NSN 6850-01-568-7963



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Hazardous Information Program Division

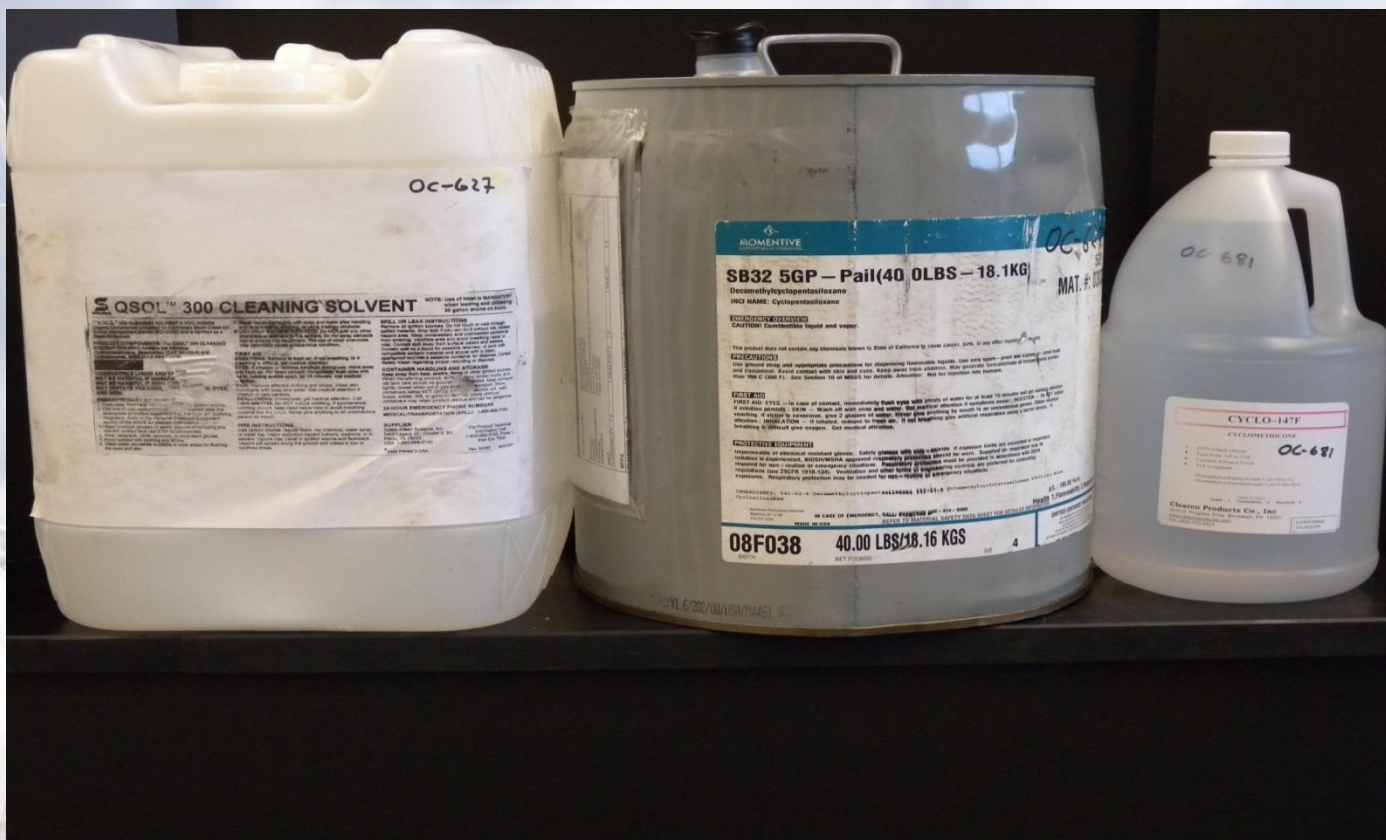
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Partnership—new products (NAVAIR) cont'd.

MIL-PRF-32295 Type I (qualified products)



SafetyKleen QSOL 300, Clearco Products Cyclo 147F, Momentive SB-32



Partnership with the Services on Hazardous Minimization Projects

