Chemical Agent Resistant Coating (CARC)

FACT SHEET 37-011-0313

1. **BACKGROUND.** CARC is a coating system that provides surfaces that are easily and effectively decontaminated after exposure to liquid chemical agents. There are three types of coatings in the CARC system: an epoxy polyamide primer, an aliphatic polyurethane paint (PUP), and epoxy polyamide enamel. Each of the coatings is supplied as a two-component system. When the two components are combined, a terminal reaction begins which makes an impermeable coating.

2. **APPLICATION**. The surfaces to be coated with CARC must sometimes be stripped. After stripping, the surface must be cleaned of all oils, grease, and water. When the item is ready for coating, the two components are mixed and allowed to stand for a prescribed period. The mixture must then be applied within a given time period known as its "pot life" in order to be effective.

3. **WASTE STREAMS**. There are several waste streams associated with the application of CARC. The most common examples of waste are: unserviceable CARC components, CARC mixtures with expired pot life, spent thinners and stripping solvents contaminated with CARC, blasting media with dry CARC residue, and empty containers. Each individual waste stream must be handled and disposed differently.

4. ALTERNATIVES. The solvent based CARC systems are being phased out in favor of a water-dispersible (WD) or water based CARC paint system. Below is a table containing National Stock Numbers (NSNs) for the new WD CARC. There is at least one manufacturer with a GSA approved WD CARC paint touch-up system (This is not an endorsement, just a statement of availability). For more information regarding the touch-up paint system, please contact USAPHC using the information at the end of this fact sheet.

5. DISPOSAL GUIDELINES.

Unserviceable CARC components:

- Solvent Based CARC: reclamation is the best option, but if it is not possible, then they must be disposed as hazardous waste with the characteristic of ignitability, reactivity and possibly toxicity (heavy metals). Hazardous Waste Number/Code: D001, F003, and F005. Do not incinerate closed containers.

- WD CARC Part A: reclamation is the best option, however if not possible, then incinerate in a multi-chambered municipal solid waste incinerator of >50 tons per day capacity. Do not incinerate closed containers. Certain colors (brown 383, 30051 and green 383, 34094) contain trivalent chromium and trivalent chromium only. There is an exemption in the federal RCRA regulations for solid wastes that fail the TCLP test for chromium only (no other metal or any other characteristic/reason) and that the generator can prove that the chromium present in the waste is exclusively or nearly exclusively trivalent chromium (Title 40 Code of Federal Regulation (CFR) Part 261.4(b)(6)(i)). Your state regulations may not have this exemption so you must first coordinate with your installation environmental office and/or state regulatory agency before using this option.

-WD CARC Part B: reclamation is the best option. Waste must be tested to determine if it exhibits any characteristic of hazardous waste (ignitability). Non-hazardous waste should be incinerated in a multi-chambered municipal solid waste incinerator of >50 tons per day capacity. Do not incinerate closed containers.

CARC mixtures with expired pot life:

- Solvent based CARC: should be allowed to dry. The dried mixture may be disposed in a sanitary landfill if the paint contains no hazardous heavy metals. If the mixture contains any heavy metals (see MSDS), then it should be tested using the Toxicity Characteristic Leaching Procedure (TCLP) test and disposed accordingly.

- WD CARC: should be allowed to dry. The dried mixture may be disposed in a sanitary landfill if the paint contains no hazardous heavy metals (see exemption above).

Spent thinners and stripping solvents contaminated with CARC- Generally, all spent thinners are hazardous for the characteristic of ignitability (D001).

Blasting media with dry CARC residue- if the CARC contaminated dust is free of heavy metals then the waste may be disposed in a sanitary landfill. If there are heavy metals present (see MSDS), then the waste must be analyzed using the TCLP test and disposed accordingly.

Empty containers- containers that held any CARC component may be recycled or disposed as ordinary trash as long as they meet the definition of empty provided in Title 40 CFR Part 261.7(b).

U.S. Army Public Health Command
Hazardous and Medical Waste
Aberdeen Proving Ground, MD 21010-5403
Commercial (410) 436-3651/DSN 584-3651

6. **INFORMATION:** The following is a list of water dispersible and low heavy metal CARC paints.

NSN 8010-01-	Color	Size*	Fed Std No.
Type I – Siliceous			
492-6637	Green 383	3 pint kit	34094
492-6638	Green 383	3 quart kit3	34094
492-6639	Green 383	3 gallon kit	34094
92-9940	Green 383	15 gallon kit	34094
492-6641	Brown 383	3 pint kit	30051
492-6642	Brown 383	3 quart kit	30051
492-6643	Brown 383	3 gallon kit	30051
492-6644	Brown 383	15 gallon kit	30051
492-6645	Tan 686A	3 pint kit	33446
492-6646	Tan 686A	3 quart kit	33446
492-6648	Tan 686A	3 gallon kit	33446
492-6649	Tan 686A	15 gallon kit	33446
492-6650	Black	3 pint kit	37030
492-6651	Black	3 quart kit	37030
492-6652	Black	3 gallon kit	37030
492-6654	Black	15 gallon kit	37030
492-6655	Aircraft Green	3 pint kit	34031
492-6656	Aircraft Green	3 quart kit	34031
492-6657	Aircraft Green	3 gallon kit	34031
492-6658	Aircraft Green	15 gallon kit	34031
492-6659	Aircraft Gray	3 pint kit	36300
492-6660	Aircraft Gray	3 quart kit	36300
492-6661	Aircraft Gray	3 gallon kit	36300
492-6663	Aircraft Gray	15 gallon kit	36300
545-1815	Aircraft Black	3 pint kit	37038
545-1817	Aircraft Black	3 quart kit	37038
545-1818	Aircraft Black	3 gallon kit	37038
545-1820	Aircraft Black	15 gallon kit	37038

*-A three pint kit consists of two pints of Component-A in a two pint container and one pint of Component-B in a one pint container.
-A three quart kit consists of two quarts of Component-A in a two quart container and one quart of Component-B in a one quart container.
-A three gallon kit consists of two gallons of Component-A in a two gallon container and one gallon of Component-B in a one gallon container.
-A 15 gallon kit consists of two to five gallon containers of Component-A and one to five gallon container of Component-B.

NSN 8010-01-	Color	Size*	Fed Std No.
Type II – Polymeric Beads			
493-3168	Green 383	3 pint kit	34094
493-3169	Green 383	3 quart kit	34094
493-3170	Green 383	3 gallon kit	34094
493-3171	Green 383	15 gallon kit	34094
493-3172	Brown 383	3 pint kit	30051
493-3173	Brown 383	3 quart kit	30051
493-3174	Brown 383	3 gallon kit	30051
493-3175	Brown 383	15 gallon kit	30051
493-3176	Tan 686A	3 pint kit	33446
493-3177	Tan 686A	3 quart kit	33446
493-3179	Tan 686A	3 gallon kit	33446
493-3180	Tan 686A	15 gallon kit	33446
493-3182	Black	3 pint kit	37030
493-3183	Black	3 quart kit	37030
493-3190	Black	3 gallon kit	37030
493-3191	Black	15 gallon kit	37030
545-1944	Aircraft Black	3 pint kit	37038
545-1947	Aircraft Black	3 quart kit	37038
545-1949	Aircraft Black	3 gallon kit	37038
545-1955	Aircraft Black	15 gallon kit	37038
493-3192	Aircraft Green	3 pint kit	34031
493-3193	Aircraft Green	3 quart kit	34031
493-3194	Aircraft Green	3 gallon kit	34031
493-3195	Aircraft Green	15 gallon kit	34031
493-3196	Aircraft Gray	3 pint kit	36300
493-3197	Aircraft Gray	3 quart kit	36300
493-3198	Aircraft Gray	3 gallon kit	36300
493-3199	Aircraft Gray	15 gallon kit	36300
545-1823	Aircraft Red	3 pint kit	31136
545-1825	Aircraft Red	3 quart kit	31136
545-1826	Aircraft Red	3 gallon kit	31136
545-1835	Aircraft Red	15 gallon kit	31136
545-1836	Aircraft Yellow	3 pint kit	33538
545-1838	Aircraft Yellow	3 quart kit	33538
545-1840	Aircraft Yellow	3 gallon kit	33538
545-1841	Aircraft Yellow	15 gallon kit	33538
545-1842	Olive Drab	3 pint kit	34088
545-1843	Olive Drab	3 quart kit	34088
545-1844	Olive Drab	3 gallon kit	34088
545-1845	Olive Drab	15 gallon kit	34088
545-1938	Aircraft Insignia Blue	3 pint kit	35044
545-1939	Aircraft Insignia Blue	3 quart kit	35044
545-1941	Aircraft Insignia Blue	3 gallon kit	35044
545-1942	Aircraft Insignia Blue	15 gallon kit	35044
545-1956	Aircraft White	3 pint kit	37875
545-1957	Aircraft White	3 quart kit	37875
545-1958	Aircraft White	3 gallon kit	37875
545-1959	Aircraft White	15 gallon kit	37875
545-1960	Sand	3 pint kit	33303
545-1961	Sand	3 quart kit	33303
545-2016	Sand	3 gallon kit	33303
545-2035	Sand	15 gallon kit	33303