



























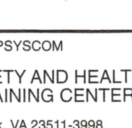




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INCOMPATIBLE MATERIALS CHART

MATERIAL GROUP		EXAMPLES	INCOMPATIBLE MATERIALS		EXAMPLES	REACTION IF MIXED	
HMUG GROUP 1	ACIDS	 Battery Acid Paint Removers De-Rust Sprays		FLAMMABLES/COMBUSTIBLES ALKALIES/BASES/CAUSTICS OXIDIZERS (HMUG GROUPS 2, 3, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 22)	Degreasers, Carbon Removers Antifogging Compounds	HEAT GAS GENERATION	VIOLENT REACTION 
2	ADHESIVES	Epoxies Isocyanates Diethylenetriamine		ACIDS ALKALIES/BASES/CAUSTICS OXIDIZERS (HMUG GROUPS 1, 3, 18)		HEAT FIRE HAZARD	
3	ALKALIES BASES/ CAUSTICS	 Ammonia Sodium Hydroxide Sodium Bicarbonate Cleaners/Detergents		ACIDS/OXIDIZERS FLAMMABLES/COMBUSTIBLES (HMUG GROUPS 1, 2, 6, 8, 9, 10, 11, 12, 14, 15, 17, 18, 19, 20, 22)	Battery Acid, Paint Removers, De-Rust Sprays, Paints/Solvents	HEAT GAS GENERATION	VIOLENT REACTION
4	CLEANING COMPOUNDS	Degreasers Carbon Removers Antifogging Compounds		DETERGENTS/SOAPS OXIDIZERS (HMUG GROUPS 7, 18)	Calcium Hypochlorite, Sodium Nitrate, Hydrogen Peroxide	HEAT FIRE HAZARD	
5	COMPRESSED GASES	 Acetylene Helium Propane Ammonia Oxygen		HEAT SOURCES CONSULT OPNAVINST 5100.19 (SERIES) AND NSTM 670 FOR SPECIFIC HANDLING AND STOWAGE GUIDANCE		FIRE HAZARD EXPLOSION HAZARD	
6	CORROSION PREVENTIVE COMPOUNDS	Corrosion Inhibitors Chemical Conversion Compounds		ACIDS BASES OXIDIZERS IGNITION SOURCES (HMUG GROUPS 1, 3, 18)		FIRE HAZARD	
7	DETERGENTS/ SOAPS	Detergents, Disinfectant, Scouring Powders, Sodium Hydroxide, Trisodium Phosphate, Potassium Hydroxide, (Alkalies/Bases/Caustics)		ACID-CONTAINING COMPOUNDS (HMUG GROUPS 1, 4, 5)	Battery Acid, Paint Removers, De-Rust Sprays,	VIOLENT REACTION HEAT	
8	GREASES	 Graphite Silicone Molybdenum		OXIDIZERS ALKALIES/BASES/ CAUSTICS (HMUG GROUPS 3, 18)		FIRE HAZARD	
9	HYDRAULIC FLUIDS	Petroleum-Based Synthetic Fire-Resistant		CORROSIVES (HMUG GROUPS 1, 3) OXIDIZERS (HMUG GROUP 18)		HEAT VIOLENT REACTION	
10	INSPECTION PENETRANTS	Petroleum-Based Dyes		CORROSIVES (HMUG GROUPS 1, 3) OXIDIZERS (HMUG GROUP 18)	Battery Acid Chlorine Laundry Bleach Calcium Hypochlorite Calcium Oxide Hydrogen Peroxide OBA Canisters Lithium Hydroxide Ammonia Paint Removers		
11	LUBRICANTS/ OILS	 Gen. Purpose, Turbine, Gear, Vacuum, Weapon		CORROSIVES (HMUG GROUPS 1, 3) OXIDIZERS (HMUG GROUP 18)		EXPLOSION HAZARD	
12	PAINTS	 Primers, Enamels, Lacquers, Strippers, Varnish, Thinners		OXIDIZERS (HMUG GROUP 18) CORROSIVES (HMUG GROUPS 1, 3)		HEAT FIRE HAZARD	
13	PHOTO CHEMICALS	Color and B/W Developers, Bleaches/Stopbath Replenishers, Toners		ACIDS HEAVY METALS (HMUG GROUPS 1, 20)		HEAT FIRE HAZARD	
14	POLISH/WAX COMPOUNDS	Buffing Compound Metal Polish Gen. Purpose Wax		CORROSIVES OXIDIZERS (HMUG GROUPS 1, 3, 18)		HEAT, FIRE HAZARD VIOLENT REACTION	
15	SOLVENTS (HYDROCARBONS)	Acetone, Methyl Ethyl Ketone (MEK), Toluene, Xylene, Alcohols		CORROSIVES OXIDIZERS BATTERIES (HMUG GROUPS 1, 3, 18, 21)	Battery Acid Calcium Hypochlorite Sodium Nitrate Hydrogen Peroxide Sodium Hydroxide	HEAT FIRE HAZARD	
16	THERMAL INSULATION	Asbestos Fibrous Glass Man-Made Vitreous Fibers		MATERIAL IS NOT REACTIVE KEEP DRY		NO REACTION	
17	WATER TREATMENT CHEMICALS	Tri-Sodium Phosphate Caustic Soda Hardness Buffer Citric/Nitric Acid Titrating Solutions		CORROSIVES OXIDIZERS HEAVY METALS (HMUG GROUPS 1, 3, 18, 20)		HEAT VIOLENT REACTION	
18	OXIDIZERS	 Chlorine Laundry Bleach Calcium Hypochlorite Calcium Oxide Hydrogen Peroxide OBA Canisters Lithium Hydroxide		PETROLEUM BASED MATERIALS FUELS, SOLVENTS, CORROSIVES, HEAT (HMUG GROUPS 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 14, 15, 17, 19, 20, 21, 22)		FIRE HAZARD TOXIC GAS GENERATION	
19	FUELS	JP4, JP5, Gasoline		CORROSIVES OXIDIZERS (HMUG GROUPS 1, 3, 18)	Battery Acid Calcium Hypochlorite Sodium Nitrate Sodium Hydroxide	FIRE HAZARD TOXIC GAS GENERATION	
20	HEAVY METALS	 Beryllium, Chromium, Copper, Lead, Magnesium, Mercury, Nickel, Strontium Chromate, Tin, Zinc		CORROSIVES OXIDIZERS WATER TREATMENT/ PHOTO CHEMICALS (HMUG GROUPS 1, 3, 6, 13, 17, 18, 21)		VIOLENT REACTION GENERATION OF TOXIC AND FLAMMABLE GAS	
21	BATTERIES	Lead Acid Alkaline Lithium Dry Cell		SOLVENTS HEAVY METALS OXIDIZERS (HMUG GROUPS 15, 18, 20)	Xylene Toluene Alcohol Tin Zinc Chromium	HEAT VIOLENT REACTION TOXIC GAS GENERATION	
22	PESTICIDES	Insecticides Fungicides Rodenticides Fumigants		CORROSIVES OXIDIZERS (HMUG GROUPS 1, 3, 18)		TOXIC GAS GENERATION	



1. This Chart is to be used as a **Guide Only!**
2. Compare the desired HMUG Group in the Left Column with the Incompatible Material(s) of that Group in the Center Column, on the same row.
3. Should the Material(s) in the Center Column be mixed with the desired Group in the Left Column, the Expected Reaction(s) can be seen in the Right Column.
4. For **specific information** on storage of Hazardous Materials, consult the MSDS, HMUG, OPNAVINST 5100.19 (Series), NSTM 670, Ships Hazardous Material List (SHML), and NAVSUP PUB 573.

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