



NAVOSHENVTRACEN

Appendix 1, **INCOMPATIBLE MATERIALS CHART**

HMUG GROUP	MATERIAL GROUP	EXAMPLES	INCOMPATIBLE MATERIALS	EXAMPLES	REACTION IF MIXED
1	ACIDS	Battery Acids Paint Removers De-Rust Sprays	FLAMMABLE/COMBUSTIBLES ALKALIES/BASES/CAUSTICS OXIDIZERS (GROUPS 2, 3, 4, 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, Paint, Solvents	HEAT GAS GENERATION VIOLENT REACTION
4	CLEANING COMPOUNDS	Degreasers Carbon Removers Antifogging Compounds	DETERGENTS/SOAPS OXIDIZERS (HMUG GROUPS 7, 18)	Calcium Hydrochlorite, Sodium Nitrate, Hydrogen Peroxide	HEAT FIRE HAZARD
5	COMPRESSED GASES	Acetylene, Helium Propane, Ammonia Oxygen	HEAT SOURCES CONSULT OPNAVIST 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	EXPLOSION HAZARD
11	LUBRICANTS/ OILS	Gen. Purpose, Turbine, Gear, Vacuum, Weapon	CORROSIVES (HMUG GROUPS 1, 3) OXIDIZERS (HMUG GROUP 18)		EXPLOSION HAZARD
12	PAINTS	Primers, Enamels, Laquers, Strippers	OXIDIZERS (HMUG GROUP 18) CORROSIVES (HMUG GROUPS 1, 3)		HEAT FIRE HAZARD
13	PHOTO CHEMICALS	Color and B/W, Toners Developers, Replenishers Bleaches/Stopbath	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 Citric Acid Harness Buffer Trating 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 GROUPS 1, 2, 3, 4, 5, 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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