Hydrogen Peroxide Material Compatibility Chart

All wetted surfaces should be made of materials that are compatible with hydrogen peroxide. The wetted area or surface of a part, component, vessel or piping is a surface which is in permanent contact with or is permanently exposed to the process fluid (liquid or gas).

Less than 8% concentration H2O2 is considered a non-hazardous substance. Typically encountered versions are baking soda-peroxide toothpaste (0.5%), contact lens sterilizer (2%), over-the-counter drug store Hydrogen Peroxide (3%), liquid detergent non-chlorine bleach (5%) and hair bleach (7.5%).

At 8% to 28% H2O2 is rated as a Class 1 Oxidizer. At these concentrations H2O2 is usually encountered as a swimming pool chemical used for pool shock treatments.

In the range of 28.1% to 52% concentrations, H2O2 is rated as a Class 2 Oxidizer, a Corrosive and a Class 1 Unstable (reactive) substance. At these concentrations, H2O2 is considered industrial strength grade.

Concentrations from 52.1% to 91% are rated as Class 3 Oxidizers, Corrosive and Class 3 Unstable (reactive) substances. H2O2 at these concentrations are used for specialty chemical processes. At concentrations above 70%, H2O2 is usually designated as high-test peroxide (HTP).

Concentrations of H2O2 greater than 91% are currently used as rocket propellant. At these concentrations, H2O2 is rated as a Class 4 Oxidizer, Corrosive and a Class 3 Unstable (reactive) substance.

Material	Compatibility 10% H_2O_2	Compatibility 30% H_2O_2	Compatibility 50% H_2O_2	Compatibility 100% H_2O_2 (HTC)
Chemical resistance data is based on 72° F (22° C) unless otherwise noted				
A- Suitable				
B - Good, minor effect, slight corrosion or discoloration		***1 - Satisfactory to 120°F (48° C)***		
F - Fair, moderate effect, not recommended for continuous use;		***2 - Satisfactory for O-rings, diaphragms or gaskets***		
softening, loss of strength, and/or swelling may occur		***3 - Temporary use only***		
X - Do Not Use - severe effect, not recommended for ANY use				
NA - Information Not Available				
304 stainless steel	B[1]	B[1]	B[1]	B[1]
316 stainless steel	B	B	A[1]	A[1]
416 stainless steel	B	B	F	X
440C stainless steel	B	B	A	X
ABS plastic	A	A	A	A

It is the sole responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or product damage. In applications where exposure to harmful chemicals is frequent, of long duration or in high concentrations, additional testing is recommended.

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ver 09-Jul-2020

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Acetal (Delrin®)	X	X	X	X
Acrylic (PMMA)	B	F	NA	X
Alloy 20 (Carpenter 20)	F	B	B	X
Aluminum	A	A	A	A
Brass	X	X	X	X
Bronze	B	B	B	B
Buna N (Nitrile)	X	X	X	X
Carbon graphite	F	F	F	F
Carbon steel	X	X	X	X
Cast iron	F	X	X	X
Ceramic Al_2O_3	A	A	A	A
Ceramic magnet	A	A	A	A
Copper	X	X	X	X
CPVC	A	A	A	A
EPDM	A	B	B	X
Epoxy (epoxide polymers)	F	B	B	X
FKM (fluoroelastomers, Viton®)	A	A	A	A
Hastelloy-C®	A	A	A	A
HDPE	A	A	A	X
Hypalon®	X	X	X	X
Hytrel® (polyester elastomer)	X	X	X	X
LDPE	A	F[1]	F[1]	F[1]
Natural rubber	B	F	F	F
Neoprene	X	X	X	X
NORYL®	A[1]	A[1]	A	A

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Nylon (polyamides)	F	X	X	X
PCTFE (Kel-F® and Neoflon®)	A[1]	A[1]	A[1]	X
PFA (perfluoroalkoxy alkanes)	A	A	A	A
Polycarbonate	A[1]	A[1]	A[1]	A
Polypropylene	A	B	B	B
PP-363 (plasticized vinyl)[2]	A	A	A	X
PPS (Ryton®)	A	A	F	F
PTFE (Garlock Glyon® 3500)[2]	A	A	A	X
PTFE (Teflon®), virgin[2]	A	A	A	A
PVC	A	A	A	A
PVDF (Hylar®)	A[1]	A[1]	X	X
PVDF (Kynar®)	A	A	A	A
PVDF (Solef®)	A[1]	A[1]	X	X
Silicone	A	B	B	B
SPR (styrene butadiene rubber)	X	X	X	X
Thiokol™ (polysulfide polymers)	X	X	X	X
Titanium[3]	A	B	B	B
TPE (thermoplastic elastomers)	X	X	X	X
TPU (thermoplastic polyurethanes)	X	X	X	X
Tygon®	B	B	B	B
Tungsten carbide	X	X	X	X
Viton® A[2]	A	A	A	A

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