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 H_2O_2 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% H_2O_2 is rated as a Class 1 Oxidizer. At these concentrations H_2O_2 is usually encountered as a swimming pool chemical used for pool shock treatments.

In the range of 28.1% to 52% concentrations, H_2O_2 is rated as a Class 2 Oxidizer, a Corrosive and a Class 1 Unstable (reactive) substance. At these concentrations, H_2O_2 is considered industrial strength grade.

Concentrations from 52.1% to 91% are rated as Class 3 Oxidizers, Corrosive and Class 3 Unstable (reactive) substances. H_2O_2 at these concentrations are used for specialty chemical processes. At concentrations above 70%, H_2O_2 is usually designated as high test peroxide (HTP).

Concentrations of H_2O_2 greater than 91% are currently used as rocket propellent. At these concentrations, H_2O_2 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)
A- Suitable				
B - Good, minor effect, slight corrosion or discoloration				
F - Fair, moderate effect, not recommended for continuous use; softening, loss of strength, and/or swelling may occur				
X - Do Not Use - severe effect, not recommended for ANY use				
N/A: Information not available				
304 stainless steel	B[2]	B[2]	B[2]	B[2]
316 stainless steel	B	B	A[2]	A[2]
416 stainless steel	B	B	F	X
440C stainless steel	B[1]	N/A	A	X
ABS plastic	A	A	A	A
Acetal (Delrin®)	X	X	X	X
Alloy 20 (Carpenter 20)	F	B	B	X
Aluminum	A	A	A	A
Brass	X	X	X	X
Bronze	B[1]	B[1]	B[1]	B[1]
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

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 and maintenance of these products. Material compatibility, product ratings and application details should be considered in the proper product selection.

Industrial Specialties Mfg.
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CPVC	A	A	A	A
EPDM	A	B	B	X
Epoxy (epoxide polymers)	F[1]	B[1]	B[1]	X
Hastelloy-C®	A	A	A	A
HDPE	A[1]	A[1]	A[1]	X
Hypalon®	X	X	X	X
Hytrel® (polyester elastomer)	X	X	X	X
LDPE	A	F[2]	F[2]	F[2]
Natural rubber	B	F	F	F
Neoprene	X	X	X	X
NORYL®	A[2]	A[2]	A	A
Nylon (polyamides)	F[1]	X	X	X
PCTFE (Kel-F® and Neoflon®)	A[2]	A[2]	A[2]	X
PFA (perfluoroalkoxy alkanes)	A	A	A	A
Polycarbonate	A[2]	A[2]	A[2]	A
Polypropylene	A	B[1]	B[1]	B[1]
PP-363 (plasticized vinyl)[3]	A[1]	A[1]	A[1]	X
PPS (Ryton®)	A	A[1]	F	F
PTFE (Garlock Glyon® 3500)[3]	A[1]	A[1]	A[1]	X
PTFE (Teflon®), virgin[3]	A	A	A	A
PVC[4]	A[1]	A[1]	A[1]	A
PVDF (Hylar®)	A[2]	A[2]	X	X
PVDF (Kynar®)	A	A	A[1]	A[1]
PVDF (Solef®)	A[2]	A[2]	X	X
Silicone	A	B	B	B
SPR (styrene butadiene rubber)	X	X	X	X
Thiokol™ (polysulfide polymers)	X	X	X	X
Titanium[4]	A[1]	B[1]	B[1]	B[1]
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[3]	A	A	A	A

A- Suitable

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F - Fair, moderate effect, not recommended for continuous use; softening, loss of strength, and/or swelling may occur

X - Do Not Use - severe effect, not recommended for ANY use

N/A: Information not available

1) Satisfactory to 72°F (22° C)

2) Satisfactory to 120°F (48° C)

3) Satisfactory for O-rings, diaphragms or gaskets

4) Temporary use only

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