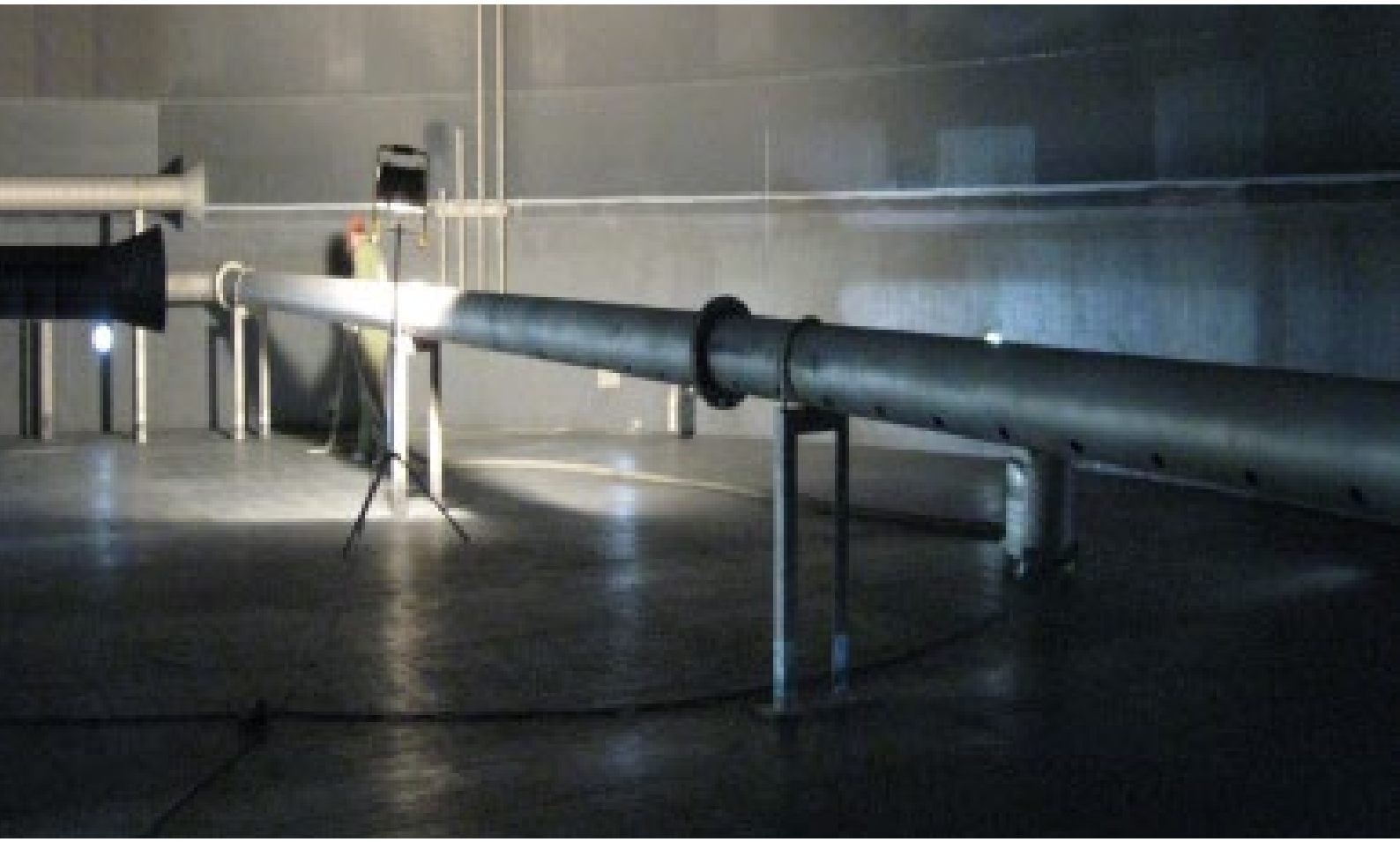
SHERWIN WILLIAMS®

CHEMICAL RESISTANCE LIST ACID PROOFING OF MAGNALUX™ VEL SYSTEM



FROM SPEC TO PROTECT

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INFORMATION

Many years of research and practical experience have led to the classification of resistance. The tests always refer to the resistance and the named chemicals. By having the same impact of different chemicals, the specimen needs to be evaluated under special conditions (temperature, pressure, concentration). This is particularly important when dealing with acids, alkalis, solvents, or oxidative substances.

In this context we refer to the guideline ‘Chemical resistance of coating materials, laying and jointing mortars’, formulated by ‘Dechema’ expert committee ‘corrosion and corrosion protection’. This analysis was carried out with adherence to the aforementioned guideline, while also considering real-world applications and practical knowledge.

TESTING PROCEDURE

Solids have been tested as aqueous solutions. They correspond practically at 20°C to saturated solutions. Unless otherwise stated, the resistance at boiling point applies to all data. For agents whose boiling point is above the temperature resistance of the relevant Sherwin-Williams system, the resistance test according to the temperature specified in the product data table applies.

ERGEBNISSE

+	resistant
(+)	limited resistance (e.g. short-term exposure)
-	not resistant
not indicated	not tested

When using Magnalux™ VEL system as disposable or laying compounds for floors and walls it can be assumed that prolonged temperatures above 30°C do not occur. In this case, the indication ‘limited resistance’ may be replaced by the indication ‘resistant’. For additional information please contact Sherwin-Williams directly.

ACID PROTECTION SYSTEM

The test results documented hereafter were achieved with the following protective system:

Magnalux™ VEL
Vinylester resin laminate coating, conductive/non-conductive.

Sealing of secondary containments and rooms made of reinforced concrete for the storage of aggressive liquids: Coatings of steel tanks for the storage of aggressive media such as concentrated acids, alkalis and solvents. Floor coatings in electro-plating plants, pickling plants, and in systems where oxidizing media are manufactured, treated or used.

IMPORTANT NOTICE

Sherwin-Williams Coatings Deutschland GmbH
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Chemicals	Conz.	Magnalux™ VEL at 20°C
Acetaldehyde		+
Acetone		+
Acetonitrile		+
Acrylonitrile		+
Battery acid		+
Alcohol		+
Used oil		+
Aluminium chloride dissolution	30 %	+
Aluminium sulphate dissolution		+
Formic acid	1 %	+
Formic acid	5 %	+
Formic acid	20 %	+
Formic acid	98 %	+
Amidosulfonic acid dissolution	17 %	+
Ammonium carbonate dissolution	50 %	+
Ammonium chloride dissolution	25 %	+
Ammonium hydrogen phosphate dissolution	40 %	+
Ammonia	25 %	+
Ammonium nitrate dissolution	50 %	+
Ammonium persulfate dissolution	50 %	+
Ammonium sulphate dissolution	50 %	+
Ammonium sulphide dissolution	50 %	+
Aniline		(+)
Aniline-water 1 : 99	99 %	+
Barium chloride dissolution	25 %	+
Pickling mixture (15 % HNO3+ 4 % HF)		(+)
Benzaldehyde		(+)
Gas		+
Benzoic acid	10 %	+
Benzene		+
Benzenesulfonic acid	10 %	+
Benzylacetate		+
Benzyl alcohol		+
Benzyl chloride		+
Boron hydrofluoric acid	48 %	(+)
Boric acid	5 %	+
Hydrobromic acid	10 %	+
Hydrobromic acid	25 %	+
Hydrobromic acid	48 %	+
N-butanol (butyl alcohol)		+
Sec.-butanol		+
Tert.-butanol		+

Magnalux™ VEL

Chemicals	Conz.	at 20°C
Butyric acid	10 %	+
Butyl acetate		+
Butyl ether		+
Cadmium nitrate	50 %	+
Cadmium sulphate	50 %	+
Calcium chloride dissolution	40 %	+
Calcium hydrogen sulphite dissolution		+
Calcium bisulphite dissolution		+
Calcium hydroxide dissolution	50 %	+
Calcium nitrate dissolution	50 %	+
Calcium sulphate dissolution (1 : 1)		+
Chlorobenzene		+
Chlorine dioxide (aqueous)	0,5 %	+
Chloroacetic acid	10 %	(+)
Chloroacetic acid	100 %	-
Gases containing chlorine, Cl2 at 20° C	2 %	+
Chlorinated lime water (1 : 1)		+
Chloroform		-
Chlorinated water, saturated with chlorine		+
Chlorinated water, saturated with water (1 : 1)		+
Chlorinated water, saturated with water (1 : 3)		+
Hydrochloric acid		+
Chromic acid	10 %	+
Chromic acid	25 %	+
Chromium sulphuric acid		(+)
Cumene		+
Cyclohexane		+
Cyclohexanol		+
Cyclohexanone		+
Cyclopentane		+
Cyclopentanol		+
Cyclopentanone		+
1,2-Dichloroethane		(+)
Dichloromethane		-
Diesel		+
Diethyl ether		+
Diisopropyl ether		+
Dimethylformamide		-
Dimethyl sulfoxide		+
Disodium hydrogen phosphate-dissolution	8 %	+
Dinitrobenzene-water (1:1)		+
2,4 dinitrotoluene		+

Chemicals	Conz.	Magnalux™ VEL at 20°C
1,4-dioxane		+
Diphenyl water 1 : 1		+
Disulfur dichloride		+
Ferric(III)-chloride-solution	46 %	+
Ferric(III)-chloride-solution	20 %	+
Petroleum		+
Acetic acid	3 %	+
Acetic acid	10 %	+
Acetic acid	100 %	+
Acetic anhydride		+
Methyl acetate		+
Ethanol		+
Ethanol water 1:1		+
Ether (diethyl ether)		+
Ethyl acetate		+
Ethylamine-dissolution	40 %	+
N-ethylaniline		+
Ethylbenzene		+
Ethyl chloride		+
Ethylene glycol		+
Fatty acids C10 - C 20		+
Fatty acid up to	5 %	-
Fatty acid up to	50 %	-
Formaldehyde-solution up to	35 %	+
Furfural		(+)
Furfuryl alcohol		(+)
Gallic acid	10 %	+
Antifreezes		+
Tannins-dissolution	50 %	+
Glycerin		+
Glycol		+
Glycol acetate		+
Urea, saturated solution		+
Fuel oil		+
Hydrazine (tempered)		-
Hydroquinone-water (1 : 1)		+
Isobutanol		+
Isopropanol		+
Potassium bichromate-dissolution (also available in different sulphuric acid dissolution)	11 %	+
Potassium bromide-dissolution	40 %	+

Magnalux™ VEL

Chemicals	Conz.	at 20°C
Potassium carbonate-dissolution	50 %	+
Potassium chlorate-dissolution	5 %	+
Potassium chloride-dissolution	25 %	+
Potassium cyanide-dissolution	40 %	+
Potassium dichromate	10 %	+
Potassium ferrocyanide (III)-dissolution	50 %	+
Potassium hydroxide	20 %	+
Potassium hydroxide	50 %	+
Potassium nitrate-dissolution	25 %	+
Potassium permanganate-dissolution	10 %	+
Potassium peroxide	5 %	+
Potassium peroxide sulphate-water 1 : 1		+
Milk of lime	50 %	+
Silica hydrofluoric acid	31 %	
Saline solution	25 %	+
Carbonic acid		+
Carbon disulphide		+
Coconut fatty acid		+
Aqua regia		-
Cresols		+
Cresols-dissolution	1 %	+
Copper acetate-dissolution	5 %	+
Copper (II)-sulfate-solution	15 %	+
White spirit		+
Cod liver oil		+
Linseed oil		+
Magnesium bisulfite dissolution		+
Magnesium chloride-dissolution	35 %	+
Magnesium hydrogen sulphite-dissolution		+
Maleic acid	10 %	+
Machine oil		+
Methanol		+
Methanol-water 1 : 1		+
Methyl acetate		+
Methylcyclohexanol		+
Methylene chloride		-
Methyl ethyl ketone		(+)
Lactic acid	5 %	+
Lactic acid	10 %	+
Lactic acid	90 %	+
Mineral oil		+
Mixed acid (15 % HNO3+ 4 % HF)		-

Chemicals	Conz.	Magnalux™ VEL at 20°C
Naphthalene-water (1 : 1)		+
Sodium acetate-dissolution	50 %	+
Sodium bichromate-dissolution	50 %	
(also in diluted sulphuric acid solution)		+
Sodium carbonate-dissolution (soda)	18 %	+
Sodium chloride-dissolution	25 %	+
Sodium chlorite-dissolution	5 %	+
Sodium hydrogen sulphate-dissolution	20 %	+
Sodium hydrogen sulphate-dissolution	39 %	+
Sodium hydroxide	20 %	+
Sodium hydroxide	50 %	+
Sodium hypochlorite-dissolution, active chlorine	12 %	+
Sodium hypochlorite-dissolution-water (1 : 9)		+
Sodium hypochlorite-dissolution + H2O (1 : 99)		+
Sodium nitrite-dissolution	45 %	+
Sodium peroxide-dissolution	5 %	+
Sodium sulfate-dissolution	15 %	+
Sodium sulphite-dissolution	20 %	+
Sodium tartrate-dissolution	30 %	+
Sodium thiosulphatet-dissolution	40 %	+
Nickel chloride solution	10 %	+
Nickel nitrate solution	10 %	+
Nickel sulfate solution	15 %	+
Nitranilin		+
Nitranilin + H2O 1 : 99		+
Nitrobenzene		+
Nitrobenzene + H2O 1 : 99		+
Nitrophenol		+
Nitrophenol + H2O 1 : 99		+
Nitrosylsulphuric acid (nitrosyl hydrogen sulphate)		-
4-nonylphenol		(+)
n-Octan		+
n-Octanol-1		+
Oils, plant-based		+
Oil, animally		+
Oleic acid		+
Oleum	32 %	-
Unleaded petrol		+
Oxalic acid-dissolution	10 %	+
Paraffin oil		+
Perchloric acid up to	70 %	+
Pentan		+

Chemicals	Conz.	Magnalux™ VEL at 20°C
Kerosene		+
Phenol, technical		(+)
Phenol-dissolution	1 %	+
Phosphorus chlorides		+
Phosphoric acid	20 %	+
Phosphoric acid	85 %	+
Polychlorinated biphenyls		+
Propanol-1		+
Propylacetate		+
Pyridine		-
Pyridine-dissolution	1 %	+
Mercury-II-bromide solution	5 %	+
Mercury-II-chloride-solution	5 %	+
Castor oil		+
Crude oil		+
Salicylic acid	5 %	+
Nitric acid	1 %	+
Nitric acid	5 %	+
Nitric acid	10 %	+
Nitric acid	20 %	+
Nitric acid	65 %	+
Nitric acid 15 % + hydrofluoric acid 3 %		-
Hydrochloric acid	20 %	+
Hydrochloric acid	37 %	+
Sulphur, melted (130° C)		
Sulfur ammonium-dissolution (ammonium sulphide)		+
Carbon disulphide		+
Sulphuric acid	10 %	+
Sulphuric acid	20 %	+
Sulphuric acid	50 %	+
Sulphuric acid	70 %	+
Sulphuric acid	90 %	-
Sulphuric acid	96 %	-
Sulphuric acid	98 %	-
Sulphuric acid at 100 degrees	70 %	+
Sulphuric acid at 100 degrees	90 %	-
Silicon tetrachloride		+
Soda-solution, ref. to natrium carbonate		+
Sulfuryl chloride		(+)
Tar, tar oils		+
Surfactant (Marlipol 013/80, Texapon M40)		+
Turpentine		+

Magnalux™ VEL

Chemicals	Conz.	at 20°C
Tetrachloroethane		+
Carbon tetrachloride		+
Tetrahydrofuran		+
Toluene		+
Trichloroacetic acid	1 %	+
Trichloroacetic acid	100 %	+
Trichloroethane		
1,1,1- trichloroethane		+
Trichloroethylene		-
Trichlorofluoromethane		
Trichlorotrifluoroethane		
1,1,2-trichlorotrifluoroethane		+
Trichloromethane, see also chloroform		-
Trisodium phosphate-dissolution	15 %	+
Water, distilled		+
Water vapor, unpressurized		+
Hydrogen peroxide	30 %	+
Tartaric acid	10 %	+
Xylene		+
Zinc chloride-dissolution	50 %	+
Zinc peroxide-dissolution	5 %	+
Tin tetrachloride		+
Citric acid-dissolution	10 %	+

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THE SHERWIN-WILLIAMS DIFFERENCE

Sherwin-Williams Protective & Marine delivers world-class industry subject matter expertise, unparalleled technical and specification service, and unmatched regional commercial team support to our customers around the globe. Our broad portfolio of high-performance coatings and systems - including protective liquid and powder, fire protection and resinous flooring - excel at combating corrosion and help customers achieve smarter, time-tested asset protection. We serve a wide array of markets across our rapidly growing international distribution footprint, including Bridge & Highway, Energy, High Value Infrastructure, Manufacturing & Processing, Marine, Rail, Power and Water & Wastewater.

SHERWIN-WILLIAMS®

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