

## Cleaning order for FunderMax panels

### FIRST CLEANING STEP

Clean the surface just with pure hot water and use a soft sponge - (DO NOT use the abrasive “green” side of the sponge), use a soft cloth or a soft brush (e.g. nylon brush).

### SECOND CLEANING STEP

If stains cannot be removed common household cleaners without abrasives e.g. dish detergent (Palmolive etc.), window cleaner (Windex etc.) may be used. Subsequently do the final cleaning.

### THIRD CLEANING STEP

If the contamination is not removable, you can use a solution of soft soap - water (1:3). Depending on the degree of pollution leave it on the surface for a couple of minutes. Subsequently do the final cleaning.

### FOURTH CLEANING STEP

Same as cleaning step 1, but additionally you may use organic solvents (e.g. acetone, alcohol, turpentine, thinner). For persistent stains, try to clean mechanically

**Caution:** Avoid scratching, use plastic or wooden spatula. Subsequently do the final cleaning.

### FIFTH CLEANING STEP

(for adhesives, varnish, sealants, silicone residues) Rub off the surface with a soft cloth or a soft sponge dry. If contaminants cannot be removed, use silicone remover or ask the adhesive manufacturer for the ideal cleaning agents.

**Caution:** Cured 2K adhesives, coatings, foams and sealant **cannot** be removed.

### SIXTH CLEANING STEP

Same as cleaning step 1. For persistent limescale acidic cleaning agents may be used (for example, 10% acetic acid or citric acid). Subsequently do the final cleaning.

### FINAL CLEANING

Remove all traces of detergent to avoid streaking. Finally, wash with pure water. Wipe the surface dry with an absorbent cloth or paper towel.

**When cleaning with solvent:** Observe the accident prevention regulations! Open windows! No open flame!



## Chemical resistance

The focus of this recommendation is a depiction of the chemical resistance of the FunderMax Compact panels and the resulting possibilities for application.

Besides their excellent mechanical values, the hygienic pore-free sealed surfaces of the FunderMax panels mean a high temperature resistance, easy cleaning and a good resistance to chemicals. The stain resistance requirements in accordance with EN 438 are also met.

They can therefore be used when for example;

- Lab and technical chemicals
- Solvents
- Disinfectants
- Dyes (certain types)
- Cosmetics

are used on the surface.

Particular attention must be paid to the careful processing of FunderMax Compact panels, as certain requirements may be imposed due to the particular field of use when constructing certain laboratory and medical facilities. For this kind of application we recommend the use of Max Resistance (lab panels).

FunderMax Compact panels are resistant against many different chemicals. However, several chemicals may still corrode the surface.

Therefore, of crucial importance are:

- The concentration
- Exposure time
- The temperature of substances used

The following lists, although there is no guarantee that they are complete, give an overview of the resistance of FunderMax Compact panels (at room temperature) against the effects of frequently occurring or used substances (solid, dissolved, fluid, gaseous).

When using substances that are not listed, we ask that you enquire further and recommend own sample tests.

## No damage

FunderMax Compact panels are resistant against the following substances and agents. These elements do not have an impact on the surface area of FunderMax Compact panels, even after prolonged exposure (16 hours).

Substance	chemical formula
Acetic Acid	CH <sub>3</sub> COOH
Acetone	CH <sub>3</sub> COCH <sub>3</sub>
Active charcoal	
Alcohol	ROH
Alcohol, beverages	
Alcohol, primary	RCH <sub>2</sub> OH
secondary	RR'CHOH
tertiary	RR'R''COH
Aldehyde	RCHO
Alum liquor	KAl(SO <sub>4</sub> ) <sub>2</sub> ·12H <sub>2</sub> O
Aluminium chloride	AlCl <sub>3</sub> .aq.
Aluminium sulphate	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>
Aluminium potassium sulphate	KAl(SO <sub>4</sub> ) <sub>2</sub>
Amides	
Amines, primary	RCONH <sub>2</sub>
secondary	RNH <sub>2</sub>
tertiary	(RR')NH
Ammonia	(RR'R'')N
Ammonium chloride	NH <sub>4</sub> OH
Ammonium sulphate	NH <sub>4</sub> Cl
Ammonium sulphate	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>
Amyl acetate	NH <sub>4</sub> SCN
Amyl alcohol	CH <sub>3</sub> COOC <sub>5</sub> H <sub>11</sub>
Aniline	C <sub>6</sub> H <sub>5</sub> OH
Animal fat	C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub>
Animal fodder	
Arabinose	
Ascorbic acid	C <sub>6</sub> H <sub>8</sub> O <sub>6</sub>
Asparagine	C <sub>4</sub> H <sub>8</sub> O <sub>3</sub>
Aspartic acid	C <sub>4</sub> H <sub>7</sub> O <sub>4</sub> N <sub>2</sub>
p-Aminoacetophenon	C <sub>8</sub> H <sub>9</sub> O <sub>2</sub> N
Baker's yeast	NH <sub>4</sub> .C <sub>4</sub> H <sub>9</sub> COCH <sub>3</sub>
Barium chloride	
Barium sulphate	BaCl <sub>2</sub>
Benzaldehyde	BaSO <sub>4</sub>
Benzene	C <sub>6</sub> H <sub>6</sub> CHO
Benzidine	C <sub>6</sub> H <sub>6</sub>
Benzoic acid	NH <sub>4</sub> .C <sub>6</sub> H <sub>5</sub> .C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub>
Biogel	C <sub>6</sub> H <sub>5</sub> COOH
Blood	
Boric acid	
Butylacetate	H <sub>2</sub> BO <sub>3</sub>
Butyl alcohol	CH <sub>3</sub> COOC <sub>4</sub> H <sub>9</sub>
Cadmium acetate	C <sub>4</sub> H <sub>9</sub> OH
Cadmium sulphate	Cd(CH <sub>3</sub> COO) <sub>2</sub>
Caffeine	CdSO <sub>4</sub>
Calcium carbonate (lime)	
Calcium chloride	CaCO <sub>3</sub>
Calcium hydroxide	CaCl <sub>2</sub>
Calcium nitrate	Ca(OH) <sub>2</sub>
Cane sugar	Ca(NO <sub>3</sub> ) <sub>2</sub>
Carbolic acid	C <sub>6</sub> H <sub>5</sub> O <sub>11</sub>
Carbolic acid - xylene	C <sub>6</sub> H <sub>5</sub> O <sub>4</sub>
Carbon tetrachloride	C <sub>2</sub> H <sub>5</sub> OH.C <sub>6</sub> H <sub>5</sub> (CH <sub>3</sub> ) <sub>2</sub>
Casein	CCl <sub>4</sub>
Castor oil	
Cedarwood oil (concentrated)	
Cement	
Chloral hydrate	
Chlorobenzene	CCl <sub>3</sub> CH(OH) <sub>2</sub>
Chloroform	C <sub>2</sub> H <sub>5</sub> Cl
Cholesterol	CHCl <sub>3</sub>
Citric acid	C <sub>6</sub> H <sub>8</sub> OH
Clay	C <sub>6</sub> H <sub>5</sub> O <sub>7</sub>
Coal	

Substance	chemical formula
Cocaine	C <sub>17</sub> H <sub>19</sub> O <sub>2</sub> N
Coffee	
Common salt	NaCl
Copper sulphate	CuSO <sub>4</sub> .aq
Cosmetics	
Cresol	CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub> OH
Cresylic acid	CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub> COOH
Cyclohexane	C <sub>6</sub> H <sub>12</sub>
Cyclohexanol	C <sub>6</sub> H <sub>11</sub> OH
Detergents	
Dextrose	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>
Digitonin	C <sub>62</sub> H <sub>102</sub> O <sub>26</sub>
Dimethyl formamide	HCON(CH <sub>3</sub> ) <sub>2</sub>
Dimethyl acetic acid	CH <sub>3</sub> COOH
Dioxan	C <sub>8</sub> H <sub>16</sub> O <sub>2</sub>
Dulcitol	C <sub>6</sub> H <sub>14</sub> O <sub>6</sub>
Ester	RCOOR'
Ethanol	C <sub>2</sub> H <sub>5</sub> OH
Ether	ROR'
Ethyl acetate	CH <sub>3</sub> COOC <sub>2</sub> H <sub>5</sub>
Ethylene dichloride	CH <sub>2</sub> ClCl
Fodder	
Foodstuffs	
Formaldehyde	HCOH
Formic acid up to 10%	HCOOH
Fructose	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>
Galactose	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>
Gelatine	
Glacial acetic acid	CH <sub>3</sub> COOH
Glucose	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>
Glycerine	CH <sub>2</sub> OH.CHOH.CH <sub>2</sub> OH
Glycocoll	NH <sub>2</sub> .CH <sub>2</sub> COOH
Glycol	HOCH <sub>2</sub> .CH <sub>2</sub> OH
Graphite	C
Greases	
Gypsum	CaSO <sub>4</sub> .2H <sub>2</sub> O
Heparin	
Heptanol	C <sub>7</sub> H <sub>14</sub> OH
Hexane	C <sub>6</sub> H <sub>14</sub>
Hexanol	C <sub>6</sub> H <sub>13</sub> OH
Hydrogen peroxide 3%	H <sub>2</sub> O <sub>2</sub>
Hypophysin	
Imido "Roche"	
Immersion oil	
Ink	
Inorganic salts and their mixtures	
Inositol	C <sub>6</sub> H <sub>12</sub> (OH) <sub>6</sub>
Insecticides	
Isoamyl acetate	CH <sub>3</sub> COOC <sub>5</sub> H <sub>11</sub>
Isopropanol	C <sub>3</sub> H <sub>7</sub> OH
Ketone	RCOR'
Lactic acid	CH <sub>3</sub> CHOHCOOH
Lactose	C <sub>12</sub> H <sub>22</sub> O <sub>11</sub>
Lead acetate	Pb(CH <sub>3</sub> COO) <sub>2</sub>
Lead nitrate	Pb(NO <sub>3</sub> ) <sub>2</sub>
Laevoluse	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>
Lipstick	
Lithium carbonate	Li <sub>2</sub> CO <sub>3</sub>

## No damage

FunderMax Compact panels are resistant against the following substances and agents. These substances do not have an impact on the surface area of FunderMax Compact panels, even after prolonged exposure (16 hours).

Substance	chemical formula	Substance	chemical formula
Magnesium carbonate	MgCO <sub>3</sub>	Sodium acetate	CH <sub>3</sub> COONa
Magnesium chloride	MgCl <sub>2</sub>	Sodium carbonate	Na <sub>2</sub> CO <sub>3</sub>
Magnesium sulphate	MgSO <sub>4</sub>	Sodium chloride	NaCl
Maltose	C <sub>12</sub> H <sub>22</sub> O <sub>11</sub>	Sodium citrate	Na <sub>3</sub> C <sub>6</sub> H <sub>5</sub> O <sub>7</sub> ·5H <sub>2</sub> O
Manitol	C <sub>6</sub> H <sub>14</sub> O <sub>6</sub>	Sodium diethylene barbiturate	NaC <sub>4</sub> H <sub>4</sub> N <sub>2</sub> O <sub>3</sub>
Mannose	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>	Sodium hydrogen sulphite	NaHSO <sub>3</sub>
Mercury	Hg	Sodium hydrogencarbonate (Sodium carbonate)	NaHCO <sub>3</sub>
Mesoinositol	C <sub>6</sub> H <sub>12</sub> (OH) <sub>6</sub>	Sodium hydroxide solution (up to approx. 10%)	NaOH
Methanol	CH <sub>3</sub> OH	Sodium hyposulphite	Na <sub>2</sub> S <sub>2</sub> O <sub>4</sub>
Milk		Sodium nitrate	NaNO <sub>3</sub>
Mineral oils		Sodium phosphate	Na <sub>3</sub> PO <sub>4</sub>
Mineral salts		Sodium silicate	Na <sub>2</sub> SiO <sub>3</sub>
Nail varnish		Sodium sulphate	Na <sub>2</sub> SO <sub>4</sub>
Nail varnish remover		Sodium sulphide	Na <sub>2</sub> S
α-Naphtol	C <sub>10</sub> H <sub>7</sub> O	Sodium sulphite	Na <sub>2</sub> SO <sub>3</sub>
α-Naphtylamine	C <sub>10</sub> H <sub>7</sub> NH <sub>2</sub>	Sodium tartrate	Na <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub>
Nickel sulphate	NiSO <sub>4</sub>	Soil	
Nicotine	C <sub>10</sub> H <sub>14</sub> N <sub>2</sub>	Soot	
p-Nitrophenol	C <sub>6</sub> H <sub>4</sub> NO <sub>2</sub> OH	Sorbitol	C <sub>6</sub> H <sub>14</sub> O <sub>6</sub>
Nonne-Appelt-reagent		Standard acetate solution	
Octanol	C <sub>8</sub> H <sub>17</sub> OH	Standard I + II - Nutrient agar	
n-Octyl alcohol	C <sub>8</sub> H <sub>17</sub> OH	Standard I + II - Nutrient broth	
Olive oil		Starch	
Oleic acid	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> CH=CH(CH <sub>2</sub> ) <sub>7</sub> COOH	Starch - common salt solution	
Organic solvents		Stearic acid	C <sub>17</sub> H <sub>35</sub> COOH
Ointments		Styrene	C <sub>8</sub> H <sub>8</sub> CH=CH <sub>2</sub>
Pandy's reagent		Sugar and sugar derivates	
Paraffin waxes	C <sub>n</sub> H <sub>2n+2</sub>	Sulphur	S
Paraffinic oil		Talcum powder	3MgO, 4SiO <sub>2</sub> , H <sub>2</sub> O
Pentanol	C <sub>5</sub> H <sub>11</sub> OH	Tannic acid	C <sub>14</sub> H <sub>6</sub> O <sub>16</sub>
Peptone		Tartaric acid	C <sub>4</sub> H <sub>4</sub> O <sub>6</sub>
Petroleum benzin		Tea	
Phenol and phenol derivatives	C <sub>6</sub> H <sub>5</sub> OH	Test serum for blood grouping	
Phenolphthalein	C <sub>20</sub> H <sub>14</sub> O <sub>4</sub>	Tetrahydrofuran	C <sub>4</sub> H <sub>8</sub> O
Polishing agents (creams/waxes)		Tetraline	C <sub>10</sub> H <sub>8</sub>
Potash lye up to approx. 10%	KOH	Thiourea	NH <sub>2</sub> CSNH <sub>2</sub>
Potassium bromate	KBrO <sub>3</sub>	Toepfer's reagent	
Potassium bromide	KBr	Toulene	C <sub>6</sub> H <sub>6</sub> CH <sub>3</sub>
Potassium carbonate	K <sub>2</sub> CO <sub>3</sub>	Trehalose	C <sub>12</sub> H <sub>22</sub> O <sub>11</sub>
Potassium chloride	KCl	Trichloro ethylene	CHCl <sub>3</sub> CCl <sub>2</sub>
Potassium hexacyanoferrate	K <sub>3</sub> Fe(CN) <sub>6</sub>	Trypsin	
Potassium iodate	KJO <sub>3</sub>	Tryptophane	C <sub>11</sub> H <sub>9</sub> O <sub>2</sub> N <sub>2</sub>
Potassium nitrate	KNO <sub>3</sub>	Turpentine	
Potassium sodium tartrate	KNaC <sub>4</sub> H <sub>4</sub> O <sub>6</sub>	Tymol	C <sub>10</sub> H <sub>14</sub> O
Potassium sulphate	K <sub>2</sub> SO <sub>4</sub>	Tymol buffer solution	
Potassium tartrate	K <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub>	Urea solution	CO(NH <sub>2</sub> ) <sub>2</sub>
Potato starch		Urease	
Propanol	C <sub>3</sub> H <sub>7</sub> OH	Uric acid	C <sub>5</sub> H <sub>4</sub> N <sub>2</sub> O <sub>3</sub>
1,2-Propylene glycol	CH <sub>3</sub> CHOHCH <sub>2</sub> OH	Urine	
Pyridine	C <sub>5</sub> H <sub>5</sub> N	Vanillin	C <sub>8</sub> H <sub>8</sub> O <sub>3</sub>
Qinol	HOC <sub>6</sub> H <sub>4</sub> OH	Vaseline	
Raffinose	C <sub>18</sub> H <sub>34</sub> O <sub>16</sub> ·5H <sub>2</sub> O	Water	H <sub>2</sub> O
Rhamnose	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> ·H <sub>2</sub> O	Water colours	
Rochelle salt		Xylene	C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub>
Saccharose	= Cane sugar	Yeasts	
Salicylaldehyde	C <sub>6</sub> H <sub>4</sub> OH.CHO	Zinc chloride	ZnCl <sub>2</sub>
Salicylic acid	C <sub>6</sub> H <sub>4</sub> OHCOOH	Zinc sulphate	ZnSO <sub>4</sub>
Saponon			
Seawater			
Soap			

## No damage under short exposure

Surfaces from FunderMax Compact panels remain unchanged when the following substances are spilled on them (particularly in liquid or dissolved form) or if they are in contact for a short amount of time. That means the panels are washed with a wet towel within 10-15 minutes and then rubbed dry.

Please note that the time of exposure is an important factor in the extent of corrosion on the HPL surfaces, even with diluted agents. As a result of the evaporation of the diluted material, the concentration of the substance increases over a period of time and the surfaces of FunderMax Compact panels will be corroded, even though the concentration used will mostly be below those named in the following list. Focused sample tests are recommended.

Substance	chemical formula
Amino-S acid up to 10%	$\text{NH}_2\text{SO}_3\text{H}$
Aniline dyes	
Antiliming agents	
Arsenic acid up to 10%	$\text{H}_3\text{AsO}_4$
Boric acid	$\text{H}_3\text{BO}_3$
Crystal violet (Gentian violet)	$\text{C}_{25}\text{H}_{28}\text{N}_4\text{Cl}$
Esbach's reagent	
Formic acid over 10%	$\text{HCOOH}$
Fuchsine solution	$\text{C}_{20}\text{H}_{16}\text{N}_4\text{O}$
Hair dyes and bleaches	
Hydrochloric acid up to 10%	$\text{HCl}$
Hydrogen peroxide over 3-30% (Perhydrol)	$\text{H}_2\text{O}_2$
Inorganic acids up to 10%	
Iodine solution	$\text{I}$
Iron (II) chloride solution	$\text{FeCl}_2$
Iron (III) chloride	$\text{FeCl}_3$
Mercury (II) chromate	$\text{HgCr}_2\text{O}_7$
Methylene blue	$\text{C}_{16}\text{H}_{18}\text{N}_2\text{ClS}$
Millon's reagent	$\text{OHg}\cdot\text{NH}_2\text{Cl}$
Nitric acid up to 10%	$\text{HNO}_3$
Nylander's reagent	
Oxalic acid	$\text{COOH}\cdot\text{COOH}$
Phosphoric acid up to 10%	$\text{H}_3\text{PO}_4$
Picric acid	$\text{C}_6\text{H}_3\text{OH}(\text{NO}_2)_3$
Potash lye over 10%	$\text{KOH}$
Potassium hydrogensulphate	$\text{KHSO}_4$
Potassium chromate	$\text{K}_2\text{CrO}_4$
Potassium dichromate	$\text{K}_2\text{Cr}_2\text{O}_7$
Potassium iodide	$\text{KI}$
Potassium permanganate	$\text{KMnO}_4$
Silver nitrate	$\text{AgNO}_3$
Sodium hydrogen-sulphate	$\text{NaHSO}_4$
Sodium hydroxide sol. over 10%	$\text{NaOH}$
Sodium hypochloride	$\text{NaOCl}$
Sodium thiosulphate	$\text{Na}_2\text{S}_2\text{O}_3$
Sublimate solution (= mercury (II) chloride)	$\text{HgCl}_2$
Sulphuric acid up to 10%	$\text{H}_2\text{SO}_4$
Sulphurous acid up to 10%	$\text{H}_2\text{SO}_3$
Varnishes and adhesives, (chemically curing)	

## High damage risk

The following chemicals destroy the FunderMax Compact panel surfaces and must be removed immediately, as they could also leave behind dull spots and coarseness.

Substance	chemical formula
In concentrations greater than 10%: Amino sulpho acid	$\text{NH}_2\text{SO}_3\text{H}$
Inorganic acids such as	
Arsenic acid	$\text{H}_3\text{AsO}_4$
Aqua regia	$\text{HNO}_3 + \text{HCl} = 1:3$
Chromosulphuric acid	$\text{K}_2\text{Cr}_2\text{O}_7 + \text{H}_2\text{SO}_4$
Hydrochloric acid	$\text{HCl}$
Hydrofluoric acid	$\text{HF}$
Hydrogen bromide	$\text{HBr}$
Nitric acid	$\text{HNO}_3$
Phosphoric acid	$\text{H}_3\text{PO}_4$
Sulphuric acid	$\text{H}_2\text{SO}_4$

## Aggressive gases

Frequent exposure to the following aggressive gases and vapors can lead to changes in the FunderMax Compact panel surfaces.

Substance	chemical formula
Acid vapours	
Bromine	$\text{Br}_2$
Chlorine	$\text{Cl}_2$
Nitrose fumes	$\text{N}_x\text{O}_y$
Sulphur dioxide	$\text{SO}_2$