

## 1002 Polyurethane - RESISTANCE AGAINST CHEMICAL SUBSTANCES

<b>Frequent contact</b>		<b>Occasional contact</b>
Punching oil	Sunflower oil	Turpentine
Linseed oil	Peanut oil	Diesel
Fish oil	Distilled water	Mineral turpentine
Potable water	Sea water	40% alcohol solution
Surfactants	Acrylic emulsion	20% aluminium sulphate
Ethylene glycol	Glycerine	Wine
Glucose	Fruit juice	Ethyl alcohol
Hexane	Kerosene	
Gas	Brine	
Vaseline		

## 4907 Epoxy - RESISTANCE AGAINST CHEMICAL SUBSTANCES

<b>Complete submersion</b>	<b>Occasional contact</b>	<b>Frequent contact</b>
Punching oil	Wine	Oleic acid
Sunflower oil	Butyl acetate	Fruit juice
Linseed oil	Ethyl acetate	Gas
Peanut oil	Acetone	20% caustic soda
Fish oil	50% phosphoric acid	40% alcohol solution
Distilled water	10% nitric acid	20% aluminium sulphate
Potable water	20% sulphuric acid	Vaseline
Sea water	Methyl alcohol	Ammonia
Turpentine	Butyl alcohol	Benzene
Surfactants	Ethyl alcohol	Toluene
Diesel	Ethyl glycol	Xylene
Acrylic emulsion	Trichloroethylene	
Ethylene glycol	Methylisobutylketone	
Glycerine		
Glucose		
Hexane		
Kerosene		
Mineral turpentine		
Brine		

**4908 Low VOC Epoxy - RESISTANCE AGAINST CHEMICAL SUBSTANCES**

<b><u>Complete submersion</u></b>	<b><u>Occasional contact</u></b>	<b><u>Frequent contact</u></b>
Punching oil	Wine	Oleic acid
Sunflower oil	Butyl acetate	Fruit juice
Linseed oil	Ethyl acetate	Ethyl glycol
Peanut oil	Acetone	20% caustic soda
Fish oil	50% phosphoric acid	40% alcohol solution
Distilled water	10% nitric acid	20% aluminium sulphate
Potable water	20% sulphuric acid	Vaseline
Sea water	Styrene	Ammonia
Turpentine	Trichloroethylene	Benzene
Surfactants	Methylisobutylketone	Xylene
Gas		Methyl alcohol
Diesel		Butyl alcohol
Acrylic emulsion		Toluene
Ethylene glycol		Ethyl alcohol
Glycerine		
Glucose		
Kerosene		
Mineral turpentine		
Brine		
Hexane		

**8908 Lite Low VOC Epoxy - RESISTANCE AGAINST CHEMICAL SUBSTANCES**

<b><u>Complete submersion</u></b>	<b><u>Occasional contact</u></b>	<b><u>Frequent contact</u></b>
Punching oil	Oleic acid	Gas
Sunflower oil	Fruit juice	40% alcohol solution
Linseed oil	20% caustic soda	20% aluminium sulphate
Peanut oil	Wine	Vaseline
Fish oil	Butyl acetate	Methyl alcohol
Distilled water	Ethyl acetate	Butyl alcohol
Potable water	Acetone	Ethyl alcohol
Sea water	20% hydrochloric acid	Benzene
Turpentine	50% phosphoric acid	Ethyl glycol
Surfactants	10% nitric acid	Toluene
Diesel	20% sulphuric acid	Xylene
Acrylic emulsion	Ammonia	
Ethylene glycol	Styrene	
Glycerine	Trichloroethylene	
Glucose	Methylisobutylketone	
Hexane		
Kerosene		
Mineral turpentine		
Brine		

### 5903 Silicon High Temperature Coating - RESISTANCE AGAINST CHEMICAL SUBSTANCES

<b>Occasional contact</b>		<b>Frequent contact</b>
Punching oil	Glycerine	Distilled water
Sunflower oil	Glucose	Potable water
Linseed oil	Fruit juice	Acrylic emulsion
Peanut oil	Hexane	Ethylene glycol
Fish oil	Kerosene	Vaseline
Sea water	Gas	
Turpentine	Mineral turpentine	
Surfactants	Brine	
Diesel	40% alcohol solution	
20% aluminium sulphate		

### SOME IMMERSION TESTS FOR THE EPOXY-SYSTEM 4210 + 4907

TEST DURATION: 25 DAYS WITH ALTERNATING THERMAL CYCLES

<b>PRODUCT</b>	<b>FUNCTION</b>	<b>ACTIVE COMPONENTS</b>	<b>ELEMENTS</b>	<b>RESULTS</b>
<b>D-TROL</b>	Disinfectant	5-15% Benzalkonium chloride 5-15% Benzylalkyldimethylchloride	Surface appearance	No effect
			Hardness	No effect
			Swelling	None
			Gloss 60°	24.9
			Gloss 20°	3.5
<b>DIVERFOAM SMS HD</b>	Cleaning agent	5-15% Sodium hydroxide	Surface appearance	No effect
			Hardness	No effect
			Swelling	None
			Gloss 60°	15.2
			Gloss 20°	2.0
<b>HYPOFOAM</b>	Chlorinated cleaningagent	1-5% Sodium hydroxide	Surface appearance	Deterioration <sup>(1)</sup>
			1-5% Sodium hypochlorite	Hardness
		Swelling		None
		Gloss 60°		3.9
		Gloss 20°	0.9	
<b>OXOFOAM</b>	Chlorinated cleaning agent	10-20% Potassium hydroxide	Surface appearance	Opaquisition <sup>(2)</sup>
			1-5% Lauryldimethylamineoxide 1-5% Sodium hypochlorite	Hardness
		Swelling		None
		Gloss 60°		1,2
		Gloss 20°	0,4	
<b>DIVERSAN GLA</b>	Microbiocide	15% Glutaraldehyde	Surface appearance	No effect
			Hardness	No effect
			Swelling	None
			Gloss 60°	28,0
			Gloss 20°	4,3

<b>ACIFOAM</b>	Acidic cleaning agent and crust remover	>30% phosphoric acid	Surface appearance	Opaquisation (2)
			Hardness	No effect
			Swelling	None
			Gloss 60°	2,1
			Gloss 20°	0,3

(1) When drying with a cloth, small amounts of stainless steel are removed, (2) No removal of stainless steel when drying with a cloth

Typical gloss before the test at 60°, 25-28 units – typical gloss before the test at 20° approx. 3.5 units

### TEST LOG

Dilution	4%
Test sequence	20 hours at +5°C
	4 hours at +20°C
	20 hours at +40°C
	4 hours at +20°C

### PREPARATION OF THE TEST PIECES

Material	Cold-worked sheet, clean and de-greased
Varnish layers	Primer type 4210 with 75 μmdry – air-drying for 18 hours
	1st cover layer type 4907 with 75 μmdry – air-drying for 18 hours
	2nd cover layer type 4907 with 75 μmdry
Polymerisation	14 days

**Tab. B**

<b>ARPA/Bo-APPROVALS FOR DIFFERENT TYPES OF STEEL IT</b>				
According to Ministerialdekret dated 21 March 1973 as amended				
<b>FOODS</b>				
		1002	4907	8908
•	Non-alcoholic beverages;	X	X (*)	X
•	Beverages with an alcohol content of < 5% Vol.: water, ciders, fruit and vegetable juice, also concentrated,	X	X (*)	X
	must, lemonades, soda, syrups, bitter, fruit teas, coffee, black tea, chocolate beverages, beer <5% Vol.;			
•	Wines, schnapps, liqueur;	X		X
•	Non-denaturisedethylalcohol;	X		X
•	Fresh bakery and pasty products without grease substances on the surface;	X	X	X
•	Sweet pasty without grease substances on the surface;	X	X	X
•	Honey and similar, molasses and sugar syrup;	X	X	X
•	Fruit pieces or as mash or paste;	X	X (*)	X
•	Preserved fruit (jam or similar, whole fruit or pieces) in water or oil;	X	X (*)	X
•	Preserved fruit (jam or similar, whole fruit or pieces) in alcohol >5% Vol. and pH ≤4.5;	X		X
•	Fruit as paste or crème;	X	X	X
•	Vegetables in pieces, as mash;	X	X (*)	X
•	Preserved vegetables in water or oil;;	X	X (*)	X
•	Preserved vegetables in alcohol >5% Vol. and pH ≤4.5;	X		X
•	Fresh fish, cooled, salted or smoked, also as paste;	X	X	X
•	Shellfish and molluscs not protected by its own shell;	X	X	X
•	Fresh meat, cooled, salted, smoked, also as paste or crème;	X	X	X
•	Processed meat products (ham, sausage, belly of pork and similar);	X	X	X
•	Meat and fish preserves in water or oil;	X	X (*)	X
•	Liquid yolk;	X	X	X
•	Whole milk, partially or fully dehydrated, partially or fully skimmed;	X	X	X
•	Fermented milk (yoghurt, butter milk) and its combinations with fruit and fruit derivatives;	X		X
•	Cream and sour cream	X	X (*)	X

**Tab. B**

<b>ARPA/Bo-APPROVALS FOR DIFFERENT KINDS OF STEEL IT</b>				
According to Ministerialdekret dated 21 March 1973 as amended				
<b>FOODS</b>				
		1002	4907	8908
•	Cheese, also belted;	X	X (*)	X
•	Rennet, liquid or melted;	X	X (*)	X
•	Vinegar;	X		X
•	Preparations for soups, vegetable soups, broths, prepared soups, vegetable soups and broths (extracts, concentrates),	X	X (*)	X
	Combined homogenised food preparations, finished dishes, liquid or mashed;			
•	Yeasts and fermenting substances as pastes;	X	X (*)	X
•	Sauces without grease substances on the surface;	X	X (*)	X
•	Mayonnaise and mayonnaise-based sauces, saladcrèmes and other dressings as oil-in-water emulsion;	X	X (*)	X
•	Sauces that contain oil and water in two layers;	X	X (*)	X
•	Mustard except for powered mustard;	X	X (*)	X
•	Ice-cream;	X	X	X
•	Concentrated water/alcohol extract with an alcohol content of > 5% Vol. and a pH <4.5;	X		X
•	Liquid coffee extract	X	X	X

X (\*) = only approved for contact with a pH value above 4.5

**DEW POINT DETERMINATION (Tab. A)**

The dew point is the temperature of an air/steam mix at which condensation starts because the maximum water content is reached (saturation).

The following table lists the dew points in degrees Celsius for the different relative humidities and temperatures of air.

<b>AIR TEMP. °C</b>	<b>Dew point in °C at a relative humidity of:</b>									
	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%
2.5	-6.8	-5.6	-4.4	-3.4	-2.4	-1.5	-0.6	0.2	1.0	1.8
5.0	-4.5	-3.3	-2.1	-1.0	0	1.0	1.9	2.7	3.5	4.3
7.5	-2.2	-0.9	0.3	1.4	2.4	3.4	4.3	5.1	6.0	6.8
10.0	0.1	1.4	2.6	3.7	4.8	5.8	6.7	7.6	8.4	9.2
12.5	2.4	3.7	5.2	6.1	7.2	8.2	9.2	10.1	10.9	11.7
15.0	4.7	6.1	7.3	8.5	9.6	10.6	11.6	12.5	13.4	14.2
17.5	7.0	8.4	9.7	10.9	12.0	13.0	14.0	15.0	15.8	16.7
20.0	9.3	10.7	12.0	13.2	14.4	15.4	16.4	17.4	18.3	19.2
22.5	11.6	13.0	14.4	15.6	16.8	17.8	18.9	19.9	20.8	21.7
25	13.9	15.4	16.7	18.0	19.1	20.3	21.3	22.3	23.2	24.1
27.5	16.2	17.5	19.1	20.4	21.6	22.7	23.8	24.8	25.7	26.6
30	18.5	20.0	21.4	22.8	24.0	25.1	26.2	27.2	28.2	29.1
32.5	20.8	22.4	23.8	25.1	26.4	27.5	28.6	29.7	30.7	31.6
35	23.1	24.7	26.1	27.5	28.8	29.9	31.1	32.1	33.1	34.1
37.5	25.4	27.0	28.5	29.9	31.1	32.4	33.5	34.6	35.6	36.6
40	27.7	29.3	30.8	32.2	33.5	34.8	35.9	37.0	38.1	39.1

42.5	30.0	31.6	33.2	34.6	35.9	37.2	38.3	39.5	40.5	41.5
45	32.3	33.9	35.5	36.9	38.3	39.6	40.8	41.9	43.0	44.0
47.5	34.5	36.3	37.8	39.3	40.7	42.0	43.2	44.4	45.5	46.5
50	36.8	38.6	40.2	41.7	43.1	44.4	45.6	46.8	47.9	49.0

**NOTE:**

It is important that no condensation forms on cleaned steel or between varnish layers during painting. At a certain temperature, air is only able to retain a certain (maximum) steam value. This value is lower at lower temperatures.