

LabIR® Paint Thermographic paint for high temperature HERP-HT-MWIR-BK-11

Special thermographic spray paint with high emissivity and high mechanical resistance for long-term applications to high temperature up to 1 000 °C. Precisely defined physical properties and emissivity dependence on the wavelength, viewing angle of an infrared camera and temperature of the measured surface allow accurate results of the non-contact temperature measurement.

Colour: black
 Volume: 400 ml
 Yield of paint: 0.3 m²

Properties

We can guarantee all mentioned thermographic paint properties only if you follow the instructions for using the paint that are introduced the website:

https://paints.labir.eu/homepage/thermographic-paint-for-high-temperature-applications

Thermographic spray paint for high-temperature applications is not primarily intended for cyclic thermal loading.

Optical properties – emissivity

- use effective emissivity for non-contact measurement of surface temperature using an infrared camera
- comply with effective emissivity for correct angle of measurement and correct surface temperature
- effective emissivity is valid for infrared cameras operating in the wavelength range $7.5-13~\mu m$

LabIR®

Phone: +420 377 634 832

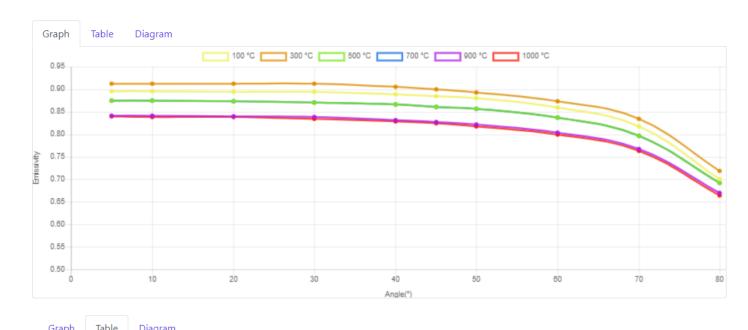
E-mail: info@labir.cz Web: paints.labir.eu



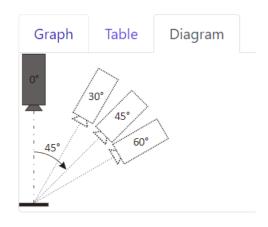




Directional dependence of effective emissivity for selected temperatures for band 7.5 – 13 μ m (resp. for infrared camera FLIR A615)

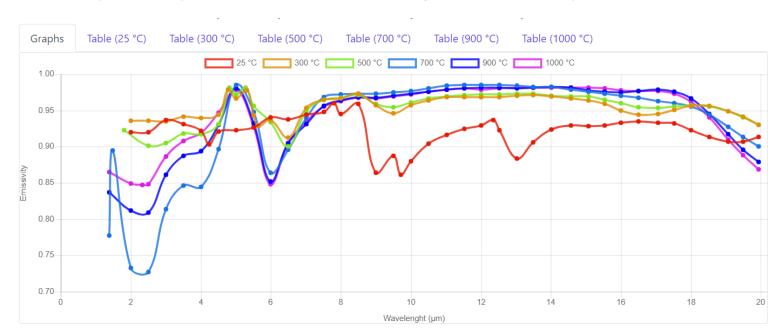


Angle (°)	Emissivity (100 °C)	Emissivity (300 °C)	Emissivity (500 °C)	Emissivity (700 °C)	Emissivity (900 °C)	Emissivity (1000 °C)
5	0.895	0.912	0.875	0.875	0.842	0.840
10	0.895	0.912	0.875	0.875	0.842	0.839
20	0.894	0.912	0.874	0.874	0.840	0.838
30	0.894	0.912	0.871	0.871	0.838	0.834
40	0.889	0.905	0.866	0.866	0.832	0.829
45	0.884	0.900	0.861	0.861	0.828	0.824
50	0.880	0.893	0.856	0.856	0.822	0.818
60	0.860	0.874	0.837	0.837	0.804	0.800
70	0.817	0.835	0.797	0.797	0.768	0.764
80	0.701	0.719	0.692	0.692	0.670	0.664





Spectral dependence of normal emissivity for selected temperatures



Graphs	Table (25 °C)	Table (300 °C)	Table (500 °C)	Table (700 °C)	Table (900 °	°C) Table (1000 °C)
		Wavele	Emissivity			
19.94						0.913
19.49						0.907
19.06						0.907
18.52						0.913
18.01						0.923
17.52						0.932
17.06						0.933
16.51						0.935
16.00						0.933
15.53						0.929
15.07						0.928
14.57						0.929
14.02						0.924
13.50						0.906
13.03						0.884
12.53						0.923
12.35						0.937



12.00	0.929
11.52	0.925
11.03	0.916
10.50	0.904
10.01	0.880
9.71	0.861
9.50	0.887
9.00	0.864
8.50	0.959
8.00	0.945
7.81	0.960
7.52	0.948
7.01	0.944
6.50	0.938
6.00	0.940
5.51	0.926
5.00	0.923
4.50	0.921
4.24	0.903
4.00	0.922
3.50	0.931
3.00	0.937
2.50	0.920
2.00	0.920



	Wavele	nght (μm)		Emissivity
19.94			(0.930
19.49			(0.941
19.06			(0.949
18.52			(0.956
18.01			(0.956
17.52			(0.951
17.06			(0.945
16.51			(0.944
16.00			(0.950
15.53			(0.959
15.07			(0.964
14.57			(0.966
14.02			(0.969
13.50			(0.971
13.03			(0.970
12.53			(0.968
12.00			(0.968
11.52			(0.968
11.03			(0.968
10.50			(0.964
10.01			(0.957
9.50			C	0.946
9.00			C	0.957
8.50			C	0.973
8.00			(9.966
7.52			C	0.965
7.01			(0.953
6.50			C	0.912
6.00			C	0.937
5.64			C	0.928
5.51			C	9.943
5.32			C	9.978
5.00			C	9.966
4.78			(9.979
4.50			C	9.944
4.00			(9.939
3.50			(9.941
3.00			(9.935
2.50			(9.936
2.00			(9.936



Table (25 °C) Table (300 °C) Table (500 °C) Table (700 °C) Table (900 °C) Table (1000 °C) Graphs Wavelenght (µm) **Emissivity** 19.94 0.930 19.49 0.940 19.06 0.949 18.52 0.955 18.01 0.957 17.52 0.955 17.06 0.953 16.51 0.954 16.00 0.960 0.965 15.53 15.07 0.969 14.57 0.969 14.02 0.970 0.973 13.50 13.03 0.973 12.53 0.972 12.00 0.972 11.52 0.971 11.03 0.969 10.50 0.966 10.01 0.961 9.50 0.954 9.00 0.959 8.50 0.971 8.00 0.967 7.52 0.965 7.01 0.949 6.50 0.900 0.934 6.00 5.51 0.956 5.28 0.981 0.972 5.00 4.81 0.981 0.931 4.50 4.00 0.917 3.50 0.918 0.905 3.00 2.50 0.901 1.80 0.923



Graphs Table (25 °C) Table (300 °C) Table (500 °C) Table (700 °C) Table (900 °C) Table (1000 °C) Wavelenght (μm) Emissivity 19.94 0.900 19.49 0.913 19.06 0.927 18.52 0.944 0.955 18.01 17.52 0.960 17.06 0.963 16.51 0.967 0.970 16.00 15.53 0.973 15.07 0.976 0.979 14.57 14.02 0.982 13.50 0.982 13.03 0.984 12.53 0.985 12.00 0.985 0.985 11.52 11.03 0.984 10.50 0.980 10.01 0.977 9.50 0.975 9.00 0.973 8.50 0.973 8.00 0.972 7.52 0.968 7.01 0.939 6.50 0.896 6.00 0.864 0.948 5.51 0.985 5.00 4.50 0.897 0.844 4.00 3.50 0.846 3.00 0.814 0.727 2.50 2.00 0.733 1.47 0.895 1.38 0.777



Graphs Table (25 °C) Table (300 °C) Table (500 °C) Table (700 °C) Table (900 °C) Table (1000 °C)

19.94 19.49 19.06 18.52 18.01	0.879 0.896 0.917 0.945 0.966
19.06 18.52 18.01	0.917 0.945 0.966
18.52 18.01	0.945 0.966
18.01	0.966
17.50	
17.52	0.976
17.06	0.979
16.51	0.977
16.00	0.975
15.53	0.976
15.07	0.978
14.57	0.981
14.02	0.982
13.50	0.981
13.03	0.980
12.53	0.981
12.00	0.981
11.52	0.980
11.03	0.979
10.50	0.976
10.01	0.973
	0.970
9.00	0.967
8.50	0.968
8.00	0.964
7.52	0.956
7.01	0.931
6.50	0.905
6.00	0.852
5.51	0.932
5.00	0.980
4.50	0.930
4.00	0.894
3.50	0.887
3.00	0.861
2.50	0.809
2.00	0.812
1.38	0.837



Graphs Table (25 °C) Table (300 °C) Table (500 °C) Table (700 °C) Table (900 °C) Table (1000 °C)

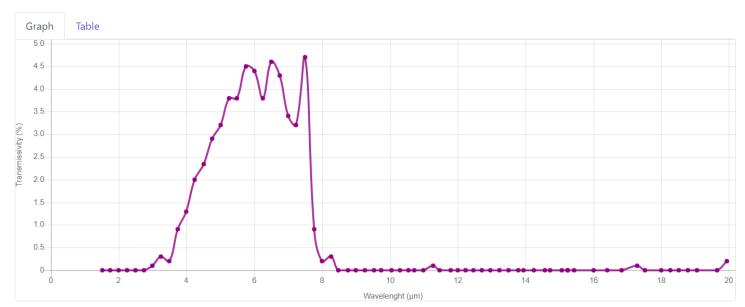
			lable (700°C)	`		lable (1000 C)	Emissivity
10.04	vvaveier	nght (μm)			0.00		Emissivity
19.94					0.86		
19.49					0.88		
19.06					0.91		
18.52					0.94		
18.01					0.96		
17.52					0.97		
17.06					0.97		
16.51					0.97		
16.00					0.97		
15.53					0.98		
15.07					0.98		
14.57					0.98		
14.02					0.98		
13.50					0.98		
13.03					0.98	1	
12.53					0.98	0	
12.00					0.97	9	
11.52					0.98	0	
11.03					0.97	9	
10.50					0.97	6	
10.01					0.97	2	
9.50					0.96	9	
9.00					0.96	6	
8.50					0.96	7	
8.00					0.96	3	
7.52					0.95	5	
7.01					0.93	5	
6.50					0.90	4	
6.00					0.84	8	
5.51					0.92	7	
5.00					0.97	9	
4.50					0.94	7	
4.00					0.91	9	
3.50					0.90	8	
3.00					0.88	6	
2.50					0.84	8	
2.32					0.84	7	
2.00					0.84	9	
1.38					0.86	5	



Optical properties - transmissivity

• band transmissivity up to 1.2 % in the wavelength band 7.5 – 13 μm (commonly used infrared cameras) at room temperature

Spectral dependence of transmissivity at room temperature



Graph Table	
Wavelenght (μm)	Transmissivity (%)
1.52	0.0
1.75	0.0
2.00	0.0
2.25	0.0
2.50	0.0
2.75	0.0
3.00	0.1
3.25	0.3
3.50	0.2
3.75	0.9
4.00	1.3
4.25	2.0
4.50	2.3
4.75	2.9
5.01	3.2
5.25	3.8
5.49	3.8
5.76	4.5



626 38 651 46 675 43 700 34 7.24 32 7.36 69 8.00 02 8.01 03 8.76 03 9.02 00 9.03 00 9.04 00 9.05 00 9.05 00 9.05 00 9.05 00 9.05 00 9.05 00 9.05 00 9.05 00 9.05 00 10.05 00 10.07 00 10.09 00 10.01 00 11.71 00 11.72 00 12.02 00 12.03 00 12.04 00 12.05 00 12.01 00 12.02 00 12	6.00	4.4
675 43 700 34 724 32 749 47 800 02 826 03 847 00 876 00 900 00 926 00 933 00 953 00 1005 00 1029 00 1054 00 1059 00 1051 00 1127 01 1147 00 1159 00 1120 01 1147 00 1120 00 1221 00 1222 00 1223 00 1247 00 1256 00 1257 00 1268 00 1279 00 1280 00 1296 00 1297 00 1298 00 1200 00	6.26	3.8
7.00 3.4 7.24 3.2 7.49 4.7 7.76 0.9 8.00 0.2 8.47 0.0 8.76 0.0 9.00 0.0 9.26 0.0 9.33 0.0 9.75 0.0 1005 0.0 1029 0.0 1054 0.0 1071 0.0 1127 0.1 1147 0.0 1128 0.0 129 0.0 1071 0.0 1127 0.1 1147 0.0 1223 0.0 1224 0.0 1225 0.0 1226 0.0 1227 0.0 1228 0.0 1229 0.0 1220 0.0 1221 0.0 1222 0.0 1233 0.0	6.51	4.6
7.24 32 7.49 4.7 7.76 99 8.00 22 8.47 00 8.47 00 8.76 0.0 9.00 0.0 9.25 0.0 9.75 0.0 10.59 0.0 10.59 0.0 10.71 0.0 10.79 0.0 11.27 0.0 11.27 0.0 11.29 0.0 11.21 0.0 11.22 0.0 12.23 0.0 12.24 0.0 12.25 0.0 12.26 0.0 12.27 0.0 12.28 0.0 12.29 0.0 12.21 0.0 12.22 0.0 12.23 0.0 12.24 0.0 12.25 0.0 12.26 0.0 12.27 <td< td=""><td>6.75</td><td>4.3</td></td<>	6.75	4.3
7.49 47 7.76 0.9 8.00 0.2 8.26 0.3 8.47 0.0 8.76 0.0 9.00 0.0 9.26 0.0 9.75 0.0 10.29 0.0 10.71 0.0 10.71 0.0 10.99 0.0 11.47 0.0 11.47 0.0 11.49 0.0 12.23 0.0 12.24 0.0 12.25 0.0 12.27 0.0 12.28 0.0 12.29 0.0 12.21 0.0 12.22 0.0 12.23 0.0 12.24 0.0 12.27 0.0 12.28 0.0 12.29 0.0 12.21 0.0 12.22 0.0 12.23 0.0 12.24 0.0 12.25 0.0 13.30 <t< td=""><td>7.00</td><td>3.4</td></t<>	7.00	3.4
7.76 09 8.00 02 8.26 03 8.47 00 8.60 00 9.00 00 9.26 00 9.53 00 10.29 00 10.29 00 10.71 00 10.99 00 11.27 01 11.47 00 11.29 00 11.47 00 11.29 00 12.21 00 12.22 00 12.23 00 12.24 00 12.27 00 12.28 00 12.29 00 12.21 00 12.22 00 12.23 00 12.24 00 12.25 00 12.26 00 13.23 00 13.24 00 13.25 00 13.26 00 13.27 00	7.24	3.2
8.00 02 8.26 03 8.47 00 8.76 00 9.00 00 9.26 00 9.75 00 10.29 00 10.29 00 10.71 00 10.99 00 11.27 0.1 11.47 0.0 11.29 0.0 12.23 0.0 12.24 0.0 12.25 0.0 12.33 0.0 13.39 0.0 13.39 0.0 13.39 0.0 13.34 0.0 13.34 0.0 13.39 0.0 13.34 0.0 13.35 0.0 13.34 0.0	7.49	4.7
8.26 0.3 8.47 0.0 8.76 0.0 900 0.0 926 0.0 9.75 0.0 10.05 0.0 10.29 0.0 10.71 0.0 10.99 0.0 11.27 0.1 11.47 0.0 11.29 0.0 12.21 0.0 12.22 0.0 12.23 0.0 12.24 0.0 12.25 0.0 13.23 0.0 13.33 0.0 13.39 0.0 13.39 0.0 13.39 0.0 13.39 0.0 13.34 0.0 13.39 0.0 13.39 0.0 13.39 0.0 13.39 0.0 13.40 0.0 13.50 0.0 13.50 0.0 13.60 0.0 13.79 0.0 13.84	7.76	0.9
8.47 00 8.76 00 9.00 00 9.26 00 9.53 00 9.75 00 10.05 00 10.29 00 10.71 00 10.99 00 11.27 0.1 11.47 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.47 0.0 12.47 0.0 12.21 0.0 12.23 0.0 12.24 0.0 12.25 0.0 13.39 0.0 13.40 0.0 13.94 0.0 14.25 0.0	8.00	0.2
876 00 926 00 953 00 975 00 1005 00 1029 00 1071 00 1072 01 1127 01 1147 00 1129 00 1220 00 1223 00 1224 00 12271 00 12271 00 1232 00 1247 00 1256 00 1323 00 1324 00 1325 00 1326 00 1327 00 1328 00 1329 00 1320 00 1321 00 1322 00 1334 00 1345 00 1350 00 1360 00 1370 00 1384 00 1394 00	8.26	0.3
900 00 926 00 933 00 975 00 1005 00 1029 00 1071 00 1099 00 1147 01 1179 00 1223 00 1247 00 1247 00 1247 00 1256 00 1323 00 1324 00 1325 00 1326 00 1339 00 1340 00 1350 00 1360 00 1379 00 1394 00 1394 00	8.47	0.0
926 00 975 00 1005 00 10.29 00 10.71 0.0 10.99 0.0 11.27 0.1 11.47 0.0 11.79 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.72 0.0 12.73 0.0 12.74 0.0 12.75 0.0 12.71 0.0 13.23 0.0 13.24 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	8.76	0.0
953 00 1005 00 10.29 00 10.71 0.0 10.99 0.0 11.27 0.1 11.47 0.0 11.79 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	9.00	0.0
975 00 10.29 0.0 10.54 0.0 10.71 0.0 10.99 0.0 11.47 0.1 11.79 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	9.26	0.0
10.05 0.0 10.54 0.0 10.71 0.0 10.99 0.0 11.27 0.1 11.47 0.0 11.79 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	9.53	0.0
10.29 0.0 10.54 0.0 10.71 0.0 10.99 0.0 11.27 0.1 11.47 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.79 0.0 13.79 0.0 13.94 0.0 14.25 0.0	9.75	0.0
10.54 0.0 10.71 0.0 10.99 0.0 11.27 0.1 11.47 0.0 11.79 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	10.05	0.0
10.71 0.0 10.99 0.0 11.27 0.1 11.47 0.0 11.79 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	10.29	0.0
10.99 0.0 11.27 0.1 11.47 0.0 11.79 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	10.54	0.0
11.27 0.1 11.47 0.0 11.79 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	10.71	0.0
11.47 0.0 11.79 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	10.99	0.0
11.79 0.0 12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	11.27	0.1
12.00 0.0 12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	11.47	0.0
12.23 0.0 12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	11.79	0.0
12.47 0.0 12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	12.00	0.0
12.71 0.0 12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	12.23	0.0
12.96 0.0 13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	12.47	0.0
13.23 0.0 13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	12.71	0.0
13.50 0.0 13.79 0.0 13.94 0.0 14.25 0.0	12.96	0.0
13.79 0.0 13.94 0.0 14.25 0.0	13.23	0.0
13.94 0.0 14.25 0.0	13.50	0.0
14.25 0.0	13.79	0.0
	13.94	0.0
14.57 0.0	14.25	0.0
	14.57	0.0



14.73	0.0
15.07	0.0
15.25	0.0
15.43	0.0
15.25	0.0
16.00	0.0
16.41	0.0
16.84	0.0
17.29	0.1
17.52	0.0
18.01	0.0
18.26	0.0
18.52	0.0
18.79	0.0
19.06	0.0
19.64	0.0
19.94	0.2

Thermal conductivity

- 0.52 W/mK (100°C)
- 0.50 W/mK (300°C)
- 0.67 W/mK (500°C)
- 2.05 W/mK (700°C)

Other properties

- Coating thickness 150 µm (according to recommended application)
- Coating roughness Ra = 3.5 μm, Rz = 25 μm



Chemical composition

Propane, butane, hydrocarbons, isobutane, C6, Isoalkane, ethylbenzene, butan-1-ol, cyclohexane.

Warning



H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated. H315 Causes skin irritation. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H411 Toxic to aquatic life with long lasting effects. P101 If medical advice is needed, have product container or label at hand. P102 Keep out of reach of children. P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P211 Do not spray on an open flame or other ignition source. P251 Do not pierce or burn, even after use. P260 Do not breathe spray. P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. P501 Dispose of contents / container in accordance with regional regulations. Buildup of explosive mixtures possible without sufficient ventilation. Contains: Hydrocarbons.