

Evaporation Materials: Metals

Our evaporation materials are available as granules with size from 1mm, pellets with diameter from 5mm, targets with size up to 1,000mm. They are suitable for both electron- and ion-beam evaporation as well as ion beam sputtering. The parameters in the table below are approximate and depend on the sinter and application conditions.

material	Ag Silver				
density colour transmission	10.5 silver 400nm...12.5µm				
wavelength	refractive index	extinction coefficient	penetration depth, nm	transmission per 10nm	reflection at AOI 0 degrees
140nm	-	-	-	-	-
150nm	-	-	-	-	-
190nm	-	-	-	-	-
300nm	-	-	-	-	-
400nm	0.05	2.14	14.88	51%	96%
600nm	0.05	4.00	11.94	43%	99%
800nm	0.05	5.61	11.35	41%	99%
1µm	0.07	7.16	11.12	41%	99%
2µm	0.22	14.67	10.85	40%	100%
4µm	0.81	29.40	10.83	40%	100%
7µm	2.38	50.87	10.96	40%	100%
8µm	3.05	57.87	11.01	40%	100%
10µm	4.00	70.97	11.22	41%	100%
12.5µm	5.10	86.60	11.49	42%	100%
15µm	-	-	-	-	-
standard form and size (other forms and sizes are available by request)	dia 18 x 10mm granules 1-6mm				
price EUR/kg	by request				

recommended crystalline quartz deposition monitors:

- with silver as electrode material (choice 1)
- with gold as electrode material (choice 2)

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material	Al Aluminium				
density colour transmission	2.7 silver 140nm...15µm				
wavelength	refractive index	extinction coefficient	penetration depth, nm	transmission per 10nm	reflection at AOI 0 degrees
140nm	0.06	1.41	7.91	28%	92%
150nm	0.06	1.56	7.66	27%	92%
190nm	0.11	2.13	7.10	24%	92%
300nm	0.26	3.58	6.67	22%	93%
400nm	0.49	4.84	6.58	22%	92%
600nm	1.26	7.19	6.64	22%	91%
800nm	2.77	8.35	7.63	27%	87%
1µm	1.44	9.50	8.38	30%	94%
2µm	2.35	20.31	7.84	28%	98%
4µm	6.77	38.68	8.23	30%	98%
7µm	14.44	63.75	8.74	32%	99%
8µm	17.68	71.77	8.87	32%	99%
10µm	25.00	85.97	9.26	34%	99%
12.5µm	33.88	101.84	9.77	36%	99%
15µm	42.24	115.66	10.33	38%	99%
standard form and size (other forms and sizes are available by request)	dia 18 x 10mm granules 1-6mm				
price EUR/kg	270				

recommended crystalline quartz deposition monitors:

- with silver as electrode material (choice 1)
- with gold as electrode material (choice 2)

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material	Au Gold				
density colour transmission	19.3 gold 400nm...15µm				
wavelength	refractive index	extinction coefficient	penetration depth, nm	transmission per 10nm	reflection at AOI 0 degrees
140nm	-	-	-	-	-
150nm	-	-	-	-	-
190nm	-	-	-	-	-
300nm	-	-	-	-	-
400nm	1.59	1.92	16.59	55%	39%
600nm	0.20	3.12	15.31	52%	93%
800nm	0.12	5.00	12.74	46%	98%
1µm	0.16	6.61	12.05	44%	99%
2µm	0.50	13.65	11.67	42%	99%
4µm	1.95	27.54	11.56	42%	99%
7µm	5.69	47.43	11.75	43%	99%
8µm	7.29	53.77	11.85	43%	99%
10µm	10.90	65.95	12.07	44%	99%
12.5µm	15.96	80.24	12.40	45%	99%
15µm	21.38	93.47	12.78	46%	99%
standard form and size (other forms and sizes are available by request)	dia 18 x 10mm granules 1-6mm				
price EUR/kg	by request				

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material	Cr Chromium				
density colour transmission	7.2 silver 190nm...2µm				
wavelength	refractive index	extinction coefficient	penetration depth, nm	transmission per 10nm	reflection at AOI 0 degrees
140nm	-	-	-	-	-
150nm	-	-	-	-	-
190nm	1.30	1.66	9.11	34%	35%
300nm	1.52	2.33	10.25	38%	48%
400nm	2.02	2.85	11.17	41%	53%
600nm	3.19	3.30	14.48	50%	55%
800nm	3.16	3.46	18.41	58%	57%
1µm	3.44	3.57	22.30	64%	58%
2µm	3.75	5.05	31.53	72%	69%
4µm	-	-	-	-	-
7µm	-	-	-	-	-
8µm	-	-	-	-	-
10µm	-	-	-	-	-
12.5µm	-	-	-	-	-
15µm	-	-	-	-	-
standard form and size (other forms and sizes are available by request)	dia 18 x 10mm granules 1-6mm				
price EUR/kg	170				

recommended crystalline quartz deposition monitors:

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material	Cu Copper				
density colour transmission	9.8 red-orange 300nm...12.5µm				
wavelength	refractive index	extinction coefficient	penetration depth, nm	transmission per 10nm	reflection at AOI 0 degrees
140nm	-	-	-	-	-
150nm	-	-	-	-	-
190nm	-	-	-	-	-
300nm	1.43	4.69	5.09	49%	36%
400nm	1.24	2.08	15.31	52%	47%
600nm	0.12	3.07	15.56	53%	96%
800nm	0.06	5.13	12.42	45%	99%
1µm	0.08	6.77	11.76	43%	99%
2µm	0.31	14.27	11.16	41%	99%
4µm	1.25	28.77	11.07	40%	99%
7µm	3.81	49.87	11.18	41%	99%
8µm	4.86	56.78	11.22	41%	99%
10µm	7.67	69.88	11.39	42%	99%
12.5µm	11.20	85.50	11.64	42%	99%
15µm	-	-	-	-	-
standard form and size (other forms and sizes are available by request)	dia 18 x 10mm granules 1-6mm				
price EUR/kg	210				

recommended crystalline quartz deposition monitors:

- with silver as electrode material (choice 1)
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material	Ge Germanium				
density colour transmission	5.4 gray-silver 2µm...15µm				
wavelength	refractive index	extinction coefficient	penetration depth, nm	transmission per 10nm	reflection at AOI 0 degrees
140nm	-	-	-	-	-
150nm	-	-	-	-	-
190nm	-	-	-	-	-
300nm	-	-	-	-	-
400nm	-	-	-	-	-
600nm	-	-	-	-	-
800nm	-	-	-	-	-
1µm	-	-	-	-	-
2µm	4.10	-	-	100%	37%
4µm	4.02	-	-	100%	36%
7µm	4.01	-	-	100%	36%
8µm	4.01	-	-	100%	36%
10µm	4.00	-	-	100%	36%
12.5µm	4.00	-	-	100%	36%
15µm	4.00	-	-	100%	36%
standard form and size (other forms and sizes are available by request)	dia 18 x 10mm granules 1-6mm				
price EUR/kg	3,139				

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material	Ni Nickel				
density colour transmission	8.9 silver 800nm...15µm				
wavelength	refractive index	extinction coefficient	penetration depth, nm	transmission per 10nm	reflection at AOI 0 degrees
140nm	-	-	-	-	-
150nm	-	-	-	-	-
190nm	-	-	-	-	-
300nm	-	-	-	-	-
400nm	-	-	-	-	-
600nm	-	-	-	-	-
800nm	2.48	4.45	14.31	50%	69%
1µm	2.82	5.11	15.58	53%	72%
2µm	3.83	8.63	18.45	58%	84%
4µm	4.95	15.10	21.09	62%	92%
7µm	6.32	25.54	21.82	63%	96%
8µm	7.12	29.00	21.96	63%	97%
10µm	8.42	35.70	22.30	64%	98%
12.5µm	11.00	43.80	22.72	64%	98%
15µm	13.64	50.90	23.46	65%	98%
standard form and size (other forms and sizes are available by request)	dia 18 x 10mm granules 1-6mm				
price EUR/kg	810				

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- with silver as electrode material (choice 1)
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material	Si silicon				
density colour transmission	2.3 silver-gray 1µm...8µm				
wavelength	refractive index	extinction coefficient	penetration depth, nm	transmission per 10nm	reflection at AOI 0 degrees
140nm	-	-	-	-	-
150nm	-	-	-	-	-
190nm	-	-	-	-	-
300nm	-	-	-	-	-
400nm	-	-	-	-	-
600nm	-	-	-	-	-
800nm	-	-	-	-	-
1µm	3.44	-	-	100%	30%
2µm	3.44	-	-	100%	30%
4µm	3.42	-	-	100%	30%
7µm	3.42	-	-	100%	30%
8µm	3.42	-	-	100%	30%
10µm	-	-	-	-	-
12.5µm	-	-	-	-	-
15µm	-	-	-	-	-
standard form and size (other forms and sizes are available by request)	dia 18 x 10mm granules 1-6mm				
price EUR/kg	430				

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material	Ti titanium				
density colour transmission	4.5 silver-gray 400nm...10µm				
wavelength	refractive index	extinction coefficient	penetration depth, nm	transmission per 10nm	reflection at AOI 0 degrees
140nm	-	-	-	-	-
150nm	-	-	-	-	-
190nm	-	-	-	-	-
300nm	-	-	-	-	-
400nm	1.71	2.23	14.28	50%	44%
600nm	2.39	3.02	15.82	53%	54%
800nm	2.95	3.38	18.84	59%	56%
1µm	3.41	3.59	22.18	64%	58%
2µm	4.03	4.47	35.62	76%	64%
4µm	3.31	7.33	43.45	79%	82%
7µm	4.56	1.70	43.88	80%	91%
8µm	5.81	14.90	42.75	79%	91%
10µm	9.09	18.60	42.81	79%	92%
12.5µm	-	-	-	-	-
15µm	-	-	-	-	-
standard form and size (other forms and sizes are available by request)	dia 18 x 10mm granules 1-6mm				
price EUR/kg	190				

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