

**Material declaration for EN11-VSB1AQ20**

No content here is banned per E.U. RoHS. Average mass of these EN11 encoders is 3.8 grams each  
Weights above one milligram rounded to the nearest mg. Values less than 1 mg given in scientific notation.

Sub-component	Material	% of Total Mass	Substance Name	CAS #	Substance Weight (grams)	Special Classification
Shaft	Al alloy	26.97%	Si	7440-21-3	0.0041	RoHS exempt, Pb in aluminum
			Fe	7439-89-6	0.0072	
			Cu	7440-50-8	0.0513	
			Mn	7439-96-5	5.13E-04	
			Mg	7439-95-4	0.0051	
			Pb	7439-92-1	0.0021	
			Bi	7440-69-9	0.0021	
			Zn	7440-66-6	0.0031	
			Al	7429-90-5	0.9497	
Switch base	PBT blend	0.82%	PBT polymer	30965-26-5	0.0109	Halogenated epoxy, contains BPA Antimony fire retardant
			Brominated epoxy resin	68928-70-1	0.0078	
			Antimony oxide	1309-64-4	0.0031	
			Glass fiber	65997-17-3	0.0093	
Ring button	Steel	3.26%	C	7440-44-0	0.0010	
			Si	7440-21-3	2.48E-04	
			Mn	7439-96-5	5.33E-04	
			P	7723-14-0	1.20E-05	
			S	7704-34-9	1.20E-05	
			Cu	7440-50-8	2.50E-05	
			Fe	7439-89-6	0.1222	
Frame	Steel	21.97%	C	231-153-3	0.0017	
			Mn	231-105-1	0.0017	
			P	231-768-7	3.34E-04	
			S	231-722-6	3.34E-04	
			Si	231-130-8	0.0025	
			Al	231-072-3	3.67E-04	
			Fe	231-096-4	0.8281	
Shaft set	Zn alloy	34.97%	Al	7429-90-5	0.0532	RoHS allowed, Pb below 0.1% threshold
			Cu	7440-50-8	0.0066	
			Mg	7439-95-4	6.65E-04	
			Fe	7439-89-6	1.33E-04	
			Pb	7439-92-1	1.30E-05	
			Cd	7440-43-9	1.00E-06	
			Sn	7440-31-5	1.00E-06	
			Zn	7440-66-6	1.2684	
Conductor base	POM	1.03%	Acetal polymer	unknown	0.0382	
			Stabilizer	unknown	7.79E-04	
Click	Steel	1.11%	C	7440-44-0	1.70E-05	
			Si	7440-21-3	1.43E-04	
			Mn	7439-96-5	5.17E-04	
			P	7723-14-0	1.30E-05	
			S	7704-34-9	4.00E-06	
			Cr	7440-47-3	0.0076	
			Ni	7440-02-0	0.0034	
	Fe	7439-89-6	0.0303			
	POM	0.37%	Acetal polymer	unknown	0.0137	
			Stabilizer	unknown	0.0003	
Spacer plate	Steel	1.37%	C	7440-44-0	2.10E-05	
			Si	7440-21-3	1.77E-04	
			Mn	7439-96-5	6.40E-04	
			P	7723-14-0	1.60E-05	
			S	7704-34-9	5.00E-06	
			Cr	7440-47-3	0.0094	
			Ni	7440-02-0	0.0042	
			Fe	7439-89-6	0.0376	
Spring plate	POM	1.08%	Acetal polymer	unknown	0.0402	
			Stabilizer	unknown	0.0008	
Conductor	Phosphor bronze	1.24%	Cu	7440-50-8	0.0431	
			Sn	7440-31-5	0.0038	
			Zn	7440-66-6	9.40E-05	

			Pb	7439-92-1	5.00E-06	RoHS exempt, Pb in Cu
			Fe	7439-89-6	1.90E-05	
			P	7723-14-0	2.40E-05	
	Ag plating	0.29%	Ag	506-64-9	0.0110	
Switch conductor	Phosphor bronze	1.32%	Cu	7440-50-8	0.0459	
			Sn	7440-31-5	0.0040	
			Zn	7440-66-6	1.00E-04	
			Pb	7439-92-1	5.00E-06	
			Fe	7439-89-6	2.00E-05	
			P	7723-14-0	2.50E-05	
	Ag plating	0.37%	Ag	506-64-9	0.0140	
Switch spring plate	Copper alloy	1.42%	Cu	7440-50-8	0.0523	
			Ti	7440-32-6	0.0017	
	Ag plating	0.29%	Ag	506-64-9	0.0110	
Slider base	PBT blend	0.84%	PBT polymer	30965-26-5	0.0112	
			Brominated epoxy resin	68928-70-1	0.0080	Halogenated epoxy, contains BPA
			Antimony oxide	1309-64-4	0.0032	Antimony fire retardant
			Glass fiber	65997-17-3	0.0096	
Slider	Phosphor bronze	1.13%	Cu	7440-50-8	0.0394	
			Sn	7440-31-5	0.0034	
			Zn	7440-66-6	8.60E-05	
			Pb	7439-92-1	4.00E-06	RoHS exempt, Pb in Cu
			Fe	7439-89-6	1.70E-05	
			P	7723-14-0	2.20E-05	
	Ag plating	0.05%	Ag	506-64-9	0.0020	
Electric conduction oil	PAO lubricant	0.05%	Polyisobutylene	9003-27-4	3.60E-04	
			PAO	68037-01-4	0.0016	
			Fumed silica	68611-44-9	4.00E-05	
Axes oil	PAO lubricant	0.05%	Polyisobutylene	9003-27-4	0.0012	
			PAO	68037-01-4	7.00E-04	
			Fumed silica	68611-44-9	1.00E-04	