



## MODEL 632 SERIES OSCILLATOR

### MATERIAL CONTENT DECLARATION REPORT

CTS Electronic Components follows the Joint Industry Guidelines (JIG) industry consortia recommendations as defined in controlling document JIG-101 for "Green Compliance" Level A and Level B material content restrictions and standardized reporting.

RoHS COMPLIANT      YES  
RoHS EXEMPTIONS      NO

Level A – Restricted Material/Substance	Material/Substance Category intentionally added or present (Y/N) above threshold level	If Yes, Material Substance Mass (g/PPM)	If Yes, Detailed Material Substance Information
Asbestos	N		
Azo colorants <sup>1</sup>	N		
Cadmium/Cadmium compounds <sup>2</sup>	N		
Hexavalent Chromium / Hexavalent Chromium Compounds <sup>2</sup>	N		
Lead / Lead Compounds <sup>2</sup>	N		
Mercury / Mercury Compounds <sup>2</sup>	N		
Ozone Depleting Substances (CFCs, HCFCs, HBFCs, carbon tetrachloride, etc)	N		
Polybrominated Biphenyls (PBBs) <sup>2</sup>	N		
Polybrominated Diphenylethers (PBDEs) <sup>2</sup>	N		
Polychlorinated Biphenyls (PCBs)	N		
Polychlorinated Naphthalenes (more than 3 chlorine atoms)	N		
Radioactive Substances	N		
Shortchain Chlorinated Paraffins	N		
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	N		
Tributyl Tin Oxide (TBTO)	N		

(1) Applicable to products and subparts that may come into direct contact with human skin.  
(2) Reported substances per EU RoHS Directive 2002/95/EC.

Level B – Reported Material/Substance	Material/Substance Category intentionally added or present (Y/N) above threshold level	If Yes, Material Substance Mass (g/PPM)	If Yes, Detailed Material Substance Information
Antimony/Antimony Compounds	N		
Arsenic/Arsenic Compounds	N		
Beryllium/Beryllium Compounds	N		
Bismuth/ Bismuth Compounds	N		
Brominated Flame Retardants (other than PBBs or PBDEs)	N		
Nickel/Nickel Compounds (external applications only)	N		
Phthalates	N		
Selenium/Selenium Compounds	N		
Polyvinyl Chloride (PVC)	N		



**ELEMENTAL ANALYSIS**

**MODEL 632 SERIES OSCILLATOR**

**RoHS/Green  
Compliant**  
**(6/6)**

**WEIGHT  
(mg)**  
**27.9970**

**MSL  
RATING**  
**1**

**MAX  
REFLOW**  
**260°C**



PRODUCT BREAKDOWN	MATERIAL	CAS NUMBER	WEIGHT OF BOM ITEM (g)	% BY WEIGHT (Comp. Item)	mg/UNIT	% BY WEIGHT OF UNIT	REMARKS/SOURCE OF INFORMATION
<b>Package</b>							
Ceramic	Al <sub>2</sub> O <sub>3</sub> (aluminium trioxide)	1344-28-1	0.019994	95.05%	19.0043	67.88%	
Conductors	W (tungsten) [Base]	7440-33-7		4.16%	0.8318	2.97%	
	Ni (nickel) plate [Barrier]	7440-02-0		0.44%	0.0880	0.31%	
	Au (gold) plate [Finish]	7440-57-5		0.35%	0.0700	0.25%	
				<b>100.00%</b>	<b>19.9940</b>		
Seal Ring	Fe (iron) kovar	7439-89-6	0.002467	53.00%	1.3075	4.67%	
	Ni (nickel) Kovar	7440-02-0		29.00%	0.7154	2.56%	
	Co (cobalt) Kovar	7440-48-4		17.00%	0.4194	1.50%	
	Au (gold) plate	7440-57-5		1.00%	0.0247	0.09%	
				<b>100.00%</b>	<b>2.4670</b>		
<b>Sub-Assembly</b>							
Silicon Die (IC)	Si (silicon)	7440-21-3	0.000582	98.50%	0.5733	2.05%	
	Al (aluminium)	7429-90-5		1.50%	0.0087	0.03%	
				<b>100.00%</b>	<b>0.5820</b>		
Die Adhesive	Epoxy Resin (proprietary)		0.000615	21.00%	0.129150	0.46%	
	Aromatic Amine (proprietary)			2.00%	0.012300	0.04%	
	Ag (silver)	7440-22-4		77.00%	0.473550	1.69%	
				<b>100.00%</b>	<b>0.6150</b>		
<b>Final Assembly</b>							
Crystal Blank	SiO <sub>2</sub> (silicon dioxide)	14808-60-7	0.000555	41.38%	0.2297	0.82%	
	Cr plate (chromium)	7440-47-3		21.98%	0.1220	0.44%	
	Ag plate (silver)	7440-22-4		36.64%	0.2034	0.73%	
				<b>100.00%</b>	<b>0.5550</b>		
Blank Adhesive	C <sub>8</sub> -C <sub>12</sub> (Aromatic Hydrocarbons)	64742-94-5	0.000205	20.00%	0.0410	0.15%	
	Ag (silver)	7440-22-4		70.00%	0.1435	0.51%	
	Others (proprietary)			10.00%	0.0205	0.07%	
				<b>100.00%</b>	<b>0.2050</b>		
Metal Cover	Fe (iron) kovar	7439-89-6	0.003579	53.00%	1.8969	6.78%	
	Ni (nickel) Kovar	7440-02-0		29.00%	1.0379	3.71%	
	Co (cobalt) Kovar	7440-48-4		17.00%	0.6084	2.17%	
	Ni (nickel) kovar, plate	7440-02-0		1.00%	0.0358	0.13%	
				<b>100.00%</b>	<b>3.5790</b>		
<b>Totals:</b>			<b>0.027997</b>		<b>27.9970</b>	<b>100.00%</b>	

MATERIALS COMBINED	CAS NUMBER	WEIGHT OF MATERIAL (mg)	% BY WEIGHT OF UNIT
Ag (silver)	7440-22-4	0.8204	2.93%
Al (aluminum)	7429-90-5	0.0087	0.03%
Al <sub>2</sub> O <sub>3</sub> (aluminium trioxide)	1344-28-1	19.0043	67.88%
Aromatic Amine (proprietary)		0.0123	0.04%
Au (gold)	7440-57-5	0.0946	0.34%
C <sub>8</sub> -C <sub>12</sub> (Aromatic Hydrocarbons)	64742-94-5	0.0410	0.15%
Co (cobalt)	7440-48-4	1.0278	3.67%
Cr (chromium )	7440-47-3	0.1220	0.44%
Epoxy Resin (proprietary)		0.1292	0.46%
Fe (iron)	7439-89-6	3.2044	11.45%
Ni (nickel)	7440-02-0	1.8771	6.70%
Others (proprietary)		0.0205	0.07%
Si (silicon)	7440-21-3	0.5733	2.05%
SiO <sub>2</sub> (silicon dioxide)	14808-60-7	0.2297	0.82%
W (tungsten)	7440-33-7	0.8318	2.97%

27.9970 100.00%