

**SEMI Comments on**  
**RoHS Oeko's Pack 22 Stakeholder Consultation**  
**March 2021**

SEMI welcomes the opportunity to provide feedback to the Oeko Pack 22 Stakeholder consultation. We generally support applications made on the behalf of the Umbrella Project Participants for each of those exemptions subject for this consultation.

Our expectation is that these consultations are only related to exemptions which expire shortly (e.g., July of 2021), and that no reduction will be made to the later expiry dates or the categories of equipment they cover.

The following shows parts known to be used in Semiconductor-Manufacturing (and Related) Equipment – SMRE – which depend on the indicated RoHS exemptions for compliance. Some of these are simple parts such as connectors or pins, and others are more complex devices such as sensors, and some are highly complex, such as control computers.

Although majority of SMRE are outside the scope of RoHS by the LSSIT or LSF1 exclusion, removal of the exemption can affect availability of parts that are used in common with EEE within scope of RoHS and depending on the indicated RoHS exemptions for compliance will negatively impact the SMRE, forcing at a minimum a redesign of the equipment. In the case of SMRE that is in scope of RoHS, removal of the indicated exemption can result in disruption of the SMRE supply in the European market, as comparable lead-free solutions for most of parts that are currently being applied of the exemption have not been identified according to exemption extension application by the manufacturer (association).

Depending on the role of the part within the equipment, redesign of surrounding components might also be required (e.g. because of different mechanical fit of the replacement part, or different 'functional' fit of an active part (such as a controller).

Even in the simplest scenario, the new RoHS-compliant part that does not depend on the exemption will have to be given a new part number, and the 'where-used' assemblies and related drawings and bill of materials will also have to be revised as an engineering action. Even **one** such simple change could require 8 to 32 or more hours of engineering time (depending on the project management and review systems in place for the SMRE manufacturer), which, when realistically distributed into a normal work schedule in parallel with other projects, could require one to three weeks of real calendar time. It is clear from the following list that the impact could be to many parts simultaneously, which would no-doubt require a very significant engineer project to address assuming there is no direct impact to the SMRE process as a result of the changes.



If the part is directly related to the SMRE process, requalification of the equipment might be required to demonstrate there is no significant impact to customer processes. Such requalification projects can in, the best case, require many weeks of planning an analysis and potentially tens of thousands of dollars in machine time, employee time, and test work-piece costs.

Please find enclosed a table with exemption used.

#	Description	RoHS Exemption Used	Additional information	Exmpt. 6a	Exmpt. 6b	Exmpt. 6c	Exmpt. 7a	Exmpt. 7c1	Exmpt. 7cII
279	100k,12 TURN POT	R2-6c, R2-7c1	potentiometer			6c		7c1	
75	ADAPTER,CONN,BNC TO MICRODOT	R2-6c				6c			
54	ADAPTER,CONNECTOR,BNC,FEM-FEM	R2-6c				6c			
45	ADAPTER,CONNECTOR,M20,D6-12MM	R2-6c				6c			
147	ALARM,ENCASED PIEZO	R2-7c1	piezoelectric buzzer					7c1	
158	AMPLIFIER,SENSOR,CCD MICROMETER	R2-7a, R2-7c1					7a	7c1	
219	TOWER, COMPUTER	R2-15, R2-6a, R2-6b, R2-6c, R2-7a, R2-7c1, R2-7c2		6a	6b		7a		7cII
192	BASE,INCANDESCENT INDICATOR,P/M	R2-6b, R2-6c			6b	6c			
220	TOWER, COMPUTER	R2-15, R2-6a, R2-6b, R2-6c, R2-7a, R2-7c1, R2-7c2		6a	6b		7a	7c1	7cII
151	BLOCK,MINI TERMINAL	R2-6c				6c			
148	BLOCK,TERMINAL,5.0MM,16 POS	R2-6c				6c			
149	BLOCK,TERMINAL,5.0MM,20 POS	R2-6c				6c			
213	BUS COUPLER TERMINAL,ETHERCAT	R2-6c, R2-7c1				6c		7c1	
226	BUS COUPLER,TERM,E-BUS,SWITCH ADDR.	R2-6c, R2-7c1				6c		7c1	
180	BUS TERMINAL,ANALOG INPUT	R2-6c, R2-7c1				6c		7c1	
247	BUSBAR 3 PHASE 12 POS 100A	R2-6c				6c			
246	BUSBAR,3PH,28 POSITION COMB	R2-6c				6c			
109	CA ASSY M8 FEM,4PIN CON,5 MTR	R2-6c				6c			
108	CABLE ASSY COAX,BNC,RG58,1.5"	R2-6c				6c			
107	CABLE ASSY COAX,N,RG58CU,1FT	R2-6c				6c			
106	CABLE ASSY,COAX	R2-6c				6c			
20	CABLE CLAMP,ADPT G 7.0	R2-6c				6c			
110	CABLE CONNECTOR,5X22AWG,2M	R2-6c				6c			
139	CABLE,DRIFT DETECT,5M	R2-6c				6c			
202	CABLE,LIGHT CURTAIN,TX/RX,32FT	R2-6c				6c			
138	CABLE,R/A EUROFAST 12PIN,5M	R2-6c				6c			
199	CABLE,USB 2.0,EXTENSION,10FT	R2-6c				6c			
200	CABLE,USB 2.0,EXTENSION,6FT	R2-6c				6c			
143	CIR. BKR.,GEN,1 POLE,250VAC 10 A	R2-8b							
141	CIR. BKR.,GEN,1 POLE,250VAC,1.0 A	R2-8b							
142	CIR. BKR.,GEN,1 POLE,250VAC,1.0 A	R2-8b							
13	CLAMP, CABLE	R2-6c				6c			
248	CO-AX,PLUG,50KV	R2-6b, R2-6c			6b	6c			

#	Description	RoHS Exemption Used	Additional information	Exmpt. 6a	Exmpt. 6b	Exmpt. 6c	Exmpt. 7a	Exmpt. 7c1	Exmpt. 7cII
78	CONN IEC CABLE C14 MALE	R2-6c	connector			6c			
83	CONN PWR 2.1MM,5A,24VDC,FEM	R2-6c	connector			6c			
48	CONN, BNC, RU 59 (20GA CC)	R2-6c	connector			6c			
50	CONN, COAX BNC PLUG	R2-6c	connector			6c			
49	CONN, PCB, 15POS, FEM, RA	R2-6c	connector			6c			
252	CONN,12x1MM,5 PIN,FEMALE,90 DG	R2-6c	connector			6c			
29	CONN,7 PIN FEMALE 10A HAN	R2-6c	connector			6c			
43	CONN,COAX,1PIN,5KVDC,10A,50OHM	R2-6b, R2-6c	connector		6b	6c			
41	CONN,COAX,UHF,FEMALE	R2-6c	connector			6c			
69	CONN,DNET,T-RES,M12,5P,MALE	R2-6c	connector			6c			
67	CONN,FEED THRU,5PIN,M12,4A	R2-6c	connector			6c			
18	BASE,CONN 1 MODULE HAN SERIES	R2-6a	connector	6a					
68	CONN,HOUSING,DEVICENET,5P,TEE	R2-6c	connector			6c			
72	CONN,INSERT 3 PIN MALE 10A HAN	R2-6c	connector			6c			
74	CONN,INSERT 3PIN FEM 10A HAN	R2-6c	connector			6c			
21	CONN,INSERT 5 PIN MALE 16A HAN	R2-6c	connector			6c			
71	CONN,INSERT 5 PIN MALE 16A HAN	R2-6c	connector			6c			
73	CONN,INSERT 5PIN FEM 16A HAN	R2-6c	connector			6c			
168	CONN,INSERT,FEMALE,SOLDER,19PIN	R2-6c	connector			6c			
169	CONN,INSERT,MALE,SOLDER,19PIN	R2-6c	connector			6c			
161	CONN,PLUG,MALE,13-4P	R2-6c	connector			6c			
160	CONN,PLUG,MALE,15-15P	R2-6c	connector			6c			
163	CONN,PLUG,MALE,16-8P	R2-6c	connector			6c			
162	CONN,PLUG,MALE,22-55P	R2-6c	connector			6c			
188	CONN,RECEPT,MS3470L14-19S	R2-6c	connector			6c			
159	CONN,RECEPTACLE,JAM NUT,22-55S	R2-6c	connector			6c			
56	CONN,SIGNAL,M23,FEM THRED,12MM	R2-6c	connector			6c			
57	CONN,STRAIGHT,PWR,M23 FEM	R2-6c	connector			6c			
76	CONN,UHF,CRIMP RG-8	R2-6c	connector			6c			
251	CONNECTOR	R2-6c	connector			6c			
35	CONNECTOR BASE,TWIN	R2-6c	connector			6c			
81	CONNECTOR CORD RETAINER	R2-6c	connector			6c			
184	BIT,CONCRETE DRILL,CARBIDE TIP,1/2X6	R2-6a	connector	6a					
232	Connector Socket Insert HAN 6 way 35A	R2-6c	connector			6c			

#	Description	RoHS Exemption Used	Additional information	Exmpt. 6a	Exmpt. 6b	Exmpt. 6c	Exmpt. 7a	Exmpt. 7c1	Exmpt. 7cII
80	CONNECTOR, DC,2.1MMX5.5MM	R2-6c	connector			6c			
231	Connector, Modular, Insert 40A, 2 Pin Fem	R2-6c	connector			6c			
230	Connector, Modular, Insert 40A, 2 Pin Male	R2-6c	connector			6c			
42	CONNECTOR,1PIN,COAX,20A,5KV	R2-6b, R2-6c	connector		6b	6c			
146	CONNECTOR,50 PIN IDC	R2-6c	connector			6c			
28	CONNECTOR,7 PIN,MALE,HAN D	R2-6c	connector			6c			
39	CONNECTOR,BULKHEAD,BNC	R2-6c	connector			6c			
236	Connector,Circlr Insert Pins 0.8-1.5mm	R2-6c	connector			6c			
235	Connector,Circlr Insert Sockets 0.8-1.5m	R2-6c	connector			6c			
38	CONNECTOR,COAX N TYPE	R2-6c	connector			6c			
7	CONNECTOR,COAX,UHF	R2-6c	connector			6c			
241	Connector,Crimp Skt Insert 26-24AWG	R2-6c	connector			6c			
51	CONNECTOR,DC POWER PLUG	R2-6c	connector			6c			
82	CONNECTOR,DC PWR PLUG 2.5x2.5	R2-6c	connector			6c			
64	CONN,HOOD,1 LEVER M20	R2-6a	connector	6a					
34	CONNECTOR,HOOD CARRIER,TWIN	R2-6c	connector			6c			
283	CONNECTOR,HV,KF40 MOUNT	R2-6b, R2-6c	connector		6b	6c			
145	CONNECTOR,IDC	R2-6c	connector			6c			
164	CONNECTOR,MALE,RIGHT ANGLE,19P	R2-6c	connector			6c			
65	CONNECTOR,PCB,BNC,STRAIGHT	R2-6c	connector			6c			
172	CONNECTOR,POWER,12 PIN	R2-6c	connector			6c			
240	Connector Modular, Han(R) Coding Pin	R2-6a	connector	6a					
79	CONNECTOR,SOC,CABLE,C13	R2-6c	connector			6c			
111	CONNECTOR,TERMINAL BLOCK,5P	R2-6c	connector			6c			
16	CONTACT,14AWG MALE 16A PWR	R2-6c	connector pin, terminal, or socket			6c			
14	CONTACT,14AWG,FEMALE,HAN E	R2-6c	connector pin, terminal, or socket			6c			
31	CONTACT,16A F (7PIN HAN)	R2-6c	connector pin, terminal, or socket			6c			
22	CONTACT,16A F 16AWG	R2-6c	connector pin, terminal, or socket			6c			
30	CONTACT,16AWG,MALE,HAN D	R2-6c	connector pin, terminal, or socket			6c			
10	CONTACT,40A F 14AWG	R2-6c	connector pin, terminal, or socket			6c			
173	CONTACT,CRIMP,Han D,F,14 AWG	R2-6c	connector pin, terminal, or socket			6c			
171	CONTACT,CRIMP,Han E, 14AWG	R2-6c	connector pin, terminal, or socket			6c			
37	CONTACT,HANQ M 18AWG	R2-6c	connector pin, terminal, or socket			6c			

#	Description	RoHS Exemption Used	Additional information	Exmpt. 6a	Exmpt. 6b	Exmpt. 6c	Exmpt. 7a	Exmpt. 7c1	Exmpt. 7cII
9	CONTACT,MALE,10AWG,HAN C	R2-6c	connector pin, terminal, or socket			6c			
12	CONTACT,MALE,12AWG,HAN C	R2-6c	connector pin, terminal, or socket			6c			
15	CONTACT,MALE,16AWG,HAN E	R2-6c	connector pin, terminal, or socket			6c			
32	CONTACT,RELAY,14AWG MALE	R2-6c	connector pin, terminal, or socket			6c			
59	CONTACT,SOCKET 0.75-2.5 SQMM	R2-6c	connector pin, terminal, or socket			6c			
152	CONTACT,SOCKET,(F) M SERIES	R2-6c	connector pin, terminal, or socket			6c			
58	CONTACT,SOCKET,0.08-0.56SQMM	R2-6c	connector pin, terminal, or socket			6c			
63	CONTACT,SOCKET,18AWG	R2-6c	connector pin, terminal, or socket			6c			
60	CONTACT,SOCKET,24-20AWG	R2-6c	connector pin, terminal, or socket			6c			
66	CONTACT,SOCKET,30-26AWG	R2-6c	connector pin, terminal, or socket			6c			
6	CONNECTOR,FEM SCRWLOCKS	R2-6a	complex controller	6a				7c1	
155	CONNECTOR,RECEPTACLE,DSUB,25 POS	R2-6a	complex controller	6a				7c1	
185	CONVERTER,PNP OUTPUT	R2-7a					7a		
19	CORD GRIP PG11 6.5-9.5MM	R2-6c				6c			
181	COUPLING,QUICK DISCONNECT BODY	R2-6c				6c			
182	COUPLING,QUICK DISCONNECT BODY	R2-6c				6c			
33	COVER,CONN HOOD, SIZE HAN 3A	R2-6c				6c			
93	COVER,CONN,M12,FM,16.1DIA	R2-6c				6c			
62	COVER,CONNECTOR 9PIN 45°METAL	R2-6a		6a					
234	Crimp, rotary connector, female skt	R2-6c				6c			
233	Crimp, rotary connector, male pin	R2-6c				6c			
8	CRIMP,MALE,2.5MM SQ	R2-6c				6c			
137	CRIMPER,#26-14 AWG	R2-6a		6a					
254	CRYSTAL 24MHZ SMD	R2-7a					7a		
255	CRYSTAL OSC 1.8432MHZ SMD	R2-7a					7a		
112	DEVICENET, T-BRANCH, TAP	R2-6c				6c			
135	DIODE,150VR 200MA IF THD	R2-7c1						7c1	
258	DIODE,1N3595	R2-7c1						7c1	
136	DIODE,3A	R2-7a					7a		
257	DIODE,P6KE15CA.	R2-7a					7a		
205	E-CAT TERM,8X DIGITAL INPUT,NPN	R2-6c, R2-7c1				6c		7c1	
206	E-CAT TERM,8X DIGITAL OUTPUT,NPN	R2-6c, R2-7c1				6c		7c1	
208	E-CAT TERM,BUS END CAP	R2-6c, R2-7c1				6c		7c1	
207	E-CAT TERM,E-BUS POWER SUPPLY	R2-6c, R2-7c1				6c		7c1	
204	E-CAT TERM,I/O BUS SUPPLY W/FUSE	R2-6c, R2-7c1				6c		7c1	

#	Description	RoHS Exemption Used	Additional information	Exmpt. 6a	Exmpt. 6b	Exmpt. 6c	Exmpt. 7a	Exmpt. 7c1	Exmpt. 7cII
115	Emka Bow-type handle Version 1	R2-6b			6b				
4	HANDLE, OVAL, SST, M5	R2-6a		6a					
52	FEEDTHRU,COAX,3KV,7A	R2-6b, R2-6c			6b	6c			
53	FEEDTHRU,COAX,3KV,7A	R2-6b, R2-6c			6b	6c			
70	FEEDTHRU,COAX,5KVDC,10A,50OHM	R2-6b, R2-6c			6b	6c			
24	FITTING,CABLE,M25,18-25MM	R2-6c				6c			
23	FITTING,CABLE,M25,9-16MM	R2-6c				6c			
36	FITTING,REDUCER,M32-M20	R2-6c				6c			
170	HOOD,CONN,HD,LOCKDOWN	R2-6a		6a		6c			
253	FUSEHOLDER + FUSE 2A SMD	R2-7a					7a		
237	Han r Single Insert Module Hood Frame	R2-6c				6c			
238	Han(R) 4 insert Module A-D Hood Frame	R2-6c				6c			
40	HOOD,D-SUB,15POS,45DEG,4-40THD	R2-6a		6a					
2	JACK SCREW,4-40 X .250 LG	R2-6a		6a					
165	HOOD,CONNECTOR,ANGLED,7-12 MM	R2-6c				6c			
166	HOOD,CONNECTOR,STRAIGHT,3-7MM	R2-6c				6c			
167	HOOD,CONNECTOR,STRAIGHT,7-12MM	R2-6c				6c			
245	JACK SCREW,4-40 X .250 LG	R2-6a		6a					
224	I/O MOD, 2 ANLG OUT,4-20MA,ETHERCAT	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
193	I/O MOD,2 ANLG IN,DIF INPUT,4-20MA,E-BUS	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
211	I/O MOD,4 ANLG IN,DIF INPUT,4-20MA	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
217	I/O MODULE, 4 ANALOG OUT,4-20MA,ETHERCAT	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
210	I/O MODULE,16 DIG OUT,24VDC,0.5,ETHERCAT	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
209	I/O MODULE,16 DIGITAL IN,PNP,ETHERCAT	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
212	I/O MODULE,16 DIGITAL INPUT,NPN,ETHERCAT	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
215	I/O MODULE,4 DIG IN,TWIN SAFE,ETHERCAT	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	

#	Description	RoHS Exemption Used	Additional information	Exmpt. 6a	Exmpt. 6b	Exmpt. 6c	Exmpt. 7a	Exmpt. 7c1	Exmpt. 7cII
214	I/O MODULE,4 DIG OUT,TWIN SAFE,ETHERCAT	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
223	I/O MODULE,8 DIG OUT,24VDC,0.5,ETHERCAT	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
222	I/O MODULE,8 DIGITAL IN,PNP,ETHERCAT	R2-6c, R2-7c1	interface module for machine control computer			6c		7c1	
122	I/O UNIT,SEQ CONTR	R2-6c, R2-7a, R2-7c1	interface module for machine control computer			6c	7a	7c1	
256	IC REG POS VOLT 1A 5V D2PAK	R2-7a					7a		
218	IO MOD,4 RELAY OUT,125VAC/30VDC,ETHERCAT	R2-6c, R2-7c1				6c		7c1	
47	JACKSCREW KIT, 4-40	R2-6a		6a					
26	SCREWLOCK,4-40 TO M2.6 FEMALE	R2-6a		6a					
183	JACK, BANANA	R2-6c				6c			
84	JACK, BANANA, NON INSUL,0.175"	R2-6c				6c			
243	SPRNG ANCHOR,6-32,STEEL,BLK OX	R2-6a		6a					
249	JAM NUT FOR PCB/PANAL MOUNT	R2-6c				6c			
27	THUMBSCREW, M2.6 X 1.90" LG	R2-6a		6a		6c			
5	FOOT,LEVELER	R2-6a, R2-6b, R2-6c		6a	6b	6c			
121	LAN CABLE,CAT6, 5' YELLOW	R2-6a, R2-6b, R2-6c		6a	6b	6c			
119	LAN CABLE,PATCH,CAT6,14'YLV	R2-6a, R2-6b, R2-6c		6a	6b	6c			
116	LAN CABLE,PATCH,CAT6,20' RED	R2-6a, R2-6b, R2-6c		6a	6b	6c			
117	LAN CABLE,PATCH,CAT6,25R RE	R2-6a, R2-6b, R2-6c		6a	6b	6c			
201	LIGHT CURTAIN,TX/RX,SET,28"	R2-7a, R2-7c1					7a	7c1	
244	LUG, PWR FEED BUSBAR 100A	R2-6c				6c			





## About SEMI Europe

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