




## Materials Declaration Form

<b>IPC Form Type *</b>	<b>1752</b> Distribute	<b>Version</b>	<b>2</b>
<b>Sectionals *</b>	<b>Material Info</b> Manufacturing Info	<b>Subsectionals *</b>	<b>A-D</b>
<b>* : Required Field</b>			

<b>Supplier Information</b>			
<b>Company Name *</b>	<b>STMicroelectronics</b>	<b>Response Date *</b>	<b>16-02-2018</b>
<b>Company Unique ID</b>	NL 008751171B01		
<b>Contact Name *</b>	Refer to Supplier Comment section		Refer to Supplier Comment section
<b>Contact Phone *</b>	Refer to Supplier Comment section		Refer to Supplier Comment section
<b>Authorized Representative *</b>	<b>MDG MD CHAMPION</b>	<b>Representative Title</b>	<b>MDG MD CHAMPION</b>
<b>Representative Phone *</b>	Refer to Supplier Comment section		Refer to Supplier Comment section
<b>Supplier Comment</b>	Online Technical Support - STMicroelectronics : <a href="http://www.st.com/web/en/support/support.html">http://www.st.com/web/en/support/support.html</a>		

<b>Uncertainty Statement</b>			
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<b>Legal Statement</b>			
<b>Supplier Acceptance *</b>	<b>true</b>	<b>Legal Declaration *</b>	<b>Standard</b>
<b>Legal Statement</b>	<p>Supplier certifies that it gathered the provided information and such information is true and correct to the best of its knowledge and belief, as of the date that Supplier completes this form. Supplier acknowledges that Company will rely on this certification in determining the compliance of its products. Company acknowledges that Supplier may have relied on information provided by others in completing this form, and that Supplier may not have independently verified such information. However, in situations where Supplier has not independently verified information provided by others, Supplier agrees that, at a minimum, its suppliers have provided certifications regarding their contributions to the part(s), and those certifications are at least as comprehensive as the certification in this paragraph. If the Company and the Supplier enter into a written agreement with respect to the identified part(s), the terms and conditions of that agreement, including any warranty rights and/or remedies provided as part of that agreement, will be the sole and exclusive source of the Supplier's liability and the Company's remedies for issues that arise regarding information the Supplier provides in this form.</p>		

Product				
Mfr Item Number	Mfr Item Name	Version	Mfr Site	Date
STM32F446ZCT6JTR	P41A*421XXXA	A	9998	16-02-2018
	Amount	UoM	Unit type	ST ECOPACK Grade
	1315.00	mg	Each	ECOPACK® 2
	Comment	ECOPACK® 2 is STMicroelectronics trade name for ROHS compliant device without Brominated and Chlorinated compound (900ppm) and without Antimony oxide flame retardant ( in each organic material)		

Manufacturing information				
J-STD-020 MSL Rating	Classification Temp	Nbr of Reflow Cycles		 life.augmented
3	260	3		
bulk Solder Termination	Terminal Plating	Terminal Base Alloy	Comment	
Not Applicable; if coating is used or other bulk termination	Nickel/Palladium/Gold (Ni/Pd/Au)	Copper Alloy		

Package Designator	Size	Nbr of instances	Shape	
QFP	20x20x1.4	144	L Bend	
Comment	Package : 1A LQFP 144 20X20X1.4 2 0099183			

QueryList : RoHS Directive 2011/65/EU-July 2011 – Annex II amended by Directive 2015/863-April 2015	
Query	Response
1 - Product(s) meets EU RoHS requirement without any exemptions	TRUE
2 - Product(s) meets EU RoHS requirements except lead in solder and this usage may qualify under the lead in solder '7b' exemption (other selected exemptions may apply)	FALSE
3 - Product(s) meets EU RoHS requirements by application of the selected exemption(s)	FALSE
4 - Product(s) does not meet EU RoHS requirements and is not under exemptions	FALSE
Exemption Id.	Description

QueryList : REACH-12th January 2017				
Query				Response
1 - Product(s) does not contain REACH Substances Of Very High Concern above the limits per the definition within REACH				TRUE
CategoryLevel_Name	CategoryLevel_Threshold	amount in product (mg)	Application	ppm in product

Material Composition Declaration : note : Substance present with less 0.001mg will not be declared in this document						Mfr Item Name	P41A*421XXA				6999999.0	992249.0
Homogeneous Material	Material Group	Mass	UoM	Level	Substance Category	Substance	CAS	Exempt	Mass	UoM	Concentration in homogeneous material (ppm)	Concentration in product (ppm)
Die or dies	M-011 Other inorganic materials	13.206	mg	supplier	die	Silicon (Si)	7440-21-3		12.541	mg	949644	9537
				supplier	metallization	Aluminium (Al)	7429-90-5		0.047	mg	3559	36
				supplier	metallization	Copper (Cu)	7440-50-8		0.302	mg	22868	230
				supplier	metallization	Cobalt (Co)	7440-48-4		0.001	mg	76	1
				supplier	metallization	Tantalum (Ta)	7440-25-7		0.042	mg	3180	32
				supplier	metallization	Tungsten (W)	7440-33-7		0.136	mg	10298	103
				supplier	Passivation	Silicon Nitride	12033-89-5		0.035	mg	2650	27
				supplier	Passivation	Silicon Oxide	7631-86-9		0.102	mg	7724	78
LEADFRAME (MHT- C194)	M-011 Other inorganic materials	240.008	mg	supplier	ALLOY	Copper (Cu)	7440-50-8		234.008	mg	1000000	177953
				supplier	ALLOY	Iron (Fe)	7439-89-6		5.640	mg	940000	4289
				supplier	ALLOY	Zinc (Zn)	7440-66-6		0.288	mg	48000	219
				supplier	ALLOY	Metallic Phosphorus (P)	7723-14-0		0.072	mg	12000	55
LEADFRAME (MHT - PPF Plating)	M-011 Other inorganic materials	10.503	mg	supplier	COATING	Nickel (Ni)	7440-02-0		10.188	mg	970000	7748
				supplier	COATING	Palladium (Pd)	7440-05-3		0.158	mg	15000	120
				supplier	COATING	Gold (Au)	7440-57-5		0.158	mg	15000	120
DIE ATTACH (Sumitomo - CRM-1076Y)	M-011 Other inorganic materials	2.900	mg	supplier	GLUE	Silver(Ag)	7440-22-4		2.030	mg	700000	1544
				supplier	GLUE	Epoxy Resin A	9003-36-5		0.145	mg	50000	110
				supplier	GLUE	Silica fused (SiO2)	7631-86-9		0.290	mg	100000	221
				supplier	GLUE	Dicyandiamide	461-58-5		0.015	mg	5000	11
				supplier	GLUE	Diluent	3101-60-8		0.145	mg	50000	110
				supplier	GLUE	Allyl Compound	Proprietary		0.145	mg	50000	110
				supplier	GLUE	Hardener	Proprietary		0.131	mg	45000	99
BONDING WIRE (Heesung - Au HTS)	M-011 Other inorganic materials	2.529	mg	supplier	BONDING WIRE	Gold (Au)	7440-57-5		2.504	mg	990050	1904
				supplier	BONDING WIRE	Palladium (Pd)	7440-05-3		0.025	mg	9900	19
				supplier	BONDING WIRE	Calcium (Ca)	7440-70-2		0.000	mg	50	0
ENCAPSULATION (Sumitomo - G631H)	M-011 Other inorganic materials	1045.853	mg	supplier	MOLDING COMPOUND	Epoxy Resin A	Proprietary		20.737	mg	20000	15769
				supplier	MOLDING COMPOUND	Epoxy Resin B	85954-11-6		41.474	mg	40000	31539
				supplier	MOLDING COMPOUND	Silica Amorphous A	60676-86-0		822.933	mg	785000	618052
				supplier	MOLDING COMPOUND	Silica Amorphous B	7631-86-9		88.131	mg	85000	67020
				supplier	MOLDING COMPOUND	Carbon Black	1333-86-4		5.184	mg	5000	3942
				supplier	MOLDING COMPOUND	Phenol Resin	Proprietary		67.395	mg	65000	51251