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Materials Declaration Form

IPC	1752	Version	2
Form Type *	Distribute	version	2
Sectionals *	Material Info	Subsectionals *	A-D
	Manufacturing Info		* : Required Field
Supplier Information		-	
Company Name *	STMicroelectronics	Response Date *	2019-06-08
Company Unique ID	NL 008751171B01		
Contact Name *	Refer to Supplier Comment section		Refer to Supplier Comment section
Contact Phone *	Refer to Supplier Comment section	Contact Email *	Refer to Supplier Comment section
authorized Representative *	MDG MD CHAMPION	Representative Title	MDG MD CHAMPION
epresentative Phone *	Refer to Supplier Comment section	Representative Email *	Refer to Supplier Comment section
upplier Comment	http://www.st.com/web/en/suppo	rt/support.html	
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basis. STMicroelectronics disclatry truth, accuracy, merchantabilit	aims all warranties, express or implied rela y, fitness for a particular purpose and non	ated to this document and its con- infringement. ST shall have no re	

Product								
Mfr Item Number	Mfr Item Name	Version	Mfr Site	Date 2019-06-08 ST ECOPACK Grade ECOPACK® 2				
STM32F446ZCT6	P21A*421XXXA	А	9998					
	Amount	UoM	Unit type					
	1315.00	mg	Each					
		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						
3	260	3						
bulk Solder Termination	Terminal Plating	Terminal Base Alloy	Comment	life.augmented				
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							
1 - Product(s) meets EU RoHS requirement	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)							
3 - Product(s) meets EU RoHS requirements by application of the selected exemption(s) FALSE							
4 - Product(s) does not meet EU RoHS req	FALSE						
Exemption Id.	Description						

QueryList : REACH-15th January 2019							
Query							
1 - Product(s) does not contain REACH Substances Of Very High Concern above the limits per the definition within REACH							
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 P21A*421XXXA		21XXXA	XXA		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 I	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