




Product				
Mfr Item Number	Mfr Item Name	Version	Mfr Site	Date
STM32F446ZC16	P248*421XXXXA	A	9996	14-12-2017
	Amount	UoM	Unit type	ST ECOPACK Grade
	111.20	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	NAC	Copper Alloy		

Package Designator	Size	Nbr of instances	Shape	
BGA	10,10,0.8	144	No lead	
Comment	Package : A0ZY UFBGA 10X10 144L P 0.8 MM 8526251			

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 :						Mfr Item Name	P248*421XXA				7000000.0	1000000.0				
note : Substance present with less 0.001mg will not be declared in this document																
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	3.173	mg	supplier	die	Silicon (Si)	7440-21-3		2.508	mg	790419	22554				
				supplier	metallization	Aluminium (Al)	7429-90-5		0.047	mg	14812	423				
				supplier	metallization	Copper (Cu)	7440-50-8		0.302	mg	95178	2716				
				supplier	metallization	Cobalt (Co)	7440-48-4		0.001	mg	315	9				
				supplier	metallization	Tantalum (Ta)	7440-25-7		0.042	mg	13237	378				
				supplier	metallization	Tungsten (W)	7440-33-7		0.136	mg	42862	1223				
				supplier	Passivation	Silicon Nitride	12033-89-5		0.035	mg	11031	315				
				supplier	Passivation	Silicon Oxide	7631-86-9		0.102	mg	32146	917				
				SILICON DIE	M-011 Other inorganic materials	2.559	mg	supplier	DIE	Silicon (Si)	7440-21-3		2.559	mg	1000000	23016
				SUBSTRATE (DS7409HGB)	M-011 Other inorganic materials	33.167	mg	supplier	CORE	Glass Cloth	65997-17-3		5.638	mg	170000	50704
supplier	CORE	Epoxy resin	61788-97-4						1.327	mg	40000	11930				
supplier	CORE	Flame resistant epoxy resin	223769-10-6						1.327	mg	40000	11930				
supplier	CORE	Heat resistant resin	25722-66-1						1.327	mg	40000	11930				
supplier	CORE	Silica filler	7631-86-9						3.648	mg	110000	32809				
supplier	CORE	Metal Hydroxide	Proprietary						0.663	mg	20000	5965				
supplier	CORE	Copper (Cu)	7440-50-8						13.930	mg	420000	125269				
supplier	SOLDERMASK (AUS320)	Solvent naphtha(petroleum),heavy aromatic	64742-94-5						1.824	mg	55000	16404				
supplier	SOLDERMASK (AUS320)	Napthalene	91-20-3						0.192	mg	5800	1730				
supplier	SOLDERMASK (AUS320)	Phosphin oxide derivative	Proprietary						0.066	mg	2000	597				
supplier	SOLDERMASK (AUS320)	Talc containing no asbestiform fibers	14807-96-6						0.497	mg	15000	4474				
supplier	SOLDERMASK (AUS320)	Barium sulfate	7727-43-7						0.829	mg	25000	7457				
supplier	SOLDERMASK (AUS320)	Dipropylene glycol monomethyl ether	34590-94-8						0.497	mg	15000	4474				
supplier	CU PLATING	Copper (Cu)	7440-50-8						1.194	mg	36000	10737				
supplier	NI PLATING	Nickel (Ni)	7440-02-0						0.166	mg	5000	1492				
supplier	AU PLATING	Gold (Au)	7440-57-5		0.040	mg	1200	358								
DIE ATTACH (ATB-130U)	M-011 Other inorganic materials	0.369	mg	supplier	GLUE	Butadiene,acrylonitrile polymer,carboxy-termi	68610-41-3		0.258	mg	700000	2324				
				supplier	GLUE	Phenol-formaldehyde polymer	9003-35-4		0.037	mg	100000	332				
				supplier	GLUE	Phenol polymer with formaldehyde,glycidyl et	28064-14-4		0.034	mg	92000	306				
				supplier	GLUE	Dapsone	80-08-0		0.036	mg	97000	322				
				supplier	GLUE	Reaction product bisphenol-A-(epichlorhydrin	25068-38-6		0.004	mg	10000	33				
				supplier	GLUE	4,4, isopropylidenediphenol	80-05-7		0.000	mg	1000	3				
BONDING WIRE (MKE 4N)	M-011 Other inorganic materials	2.584	mg	supplier	BONDING WIRE	Gold (Au)	7440-57-5		2.584	mg	1000000	23235				
SOLDERBALL (Sn96.5Ag3.5)	M-011 Other inorganic materials	4.471	mg	supplier	SOLDERBALL	Tin (Sn)	7440-31-5		4.315	mg	965000	38803				
				supplier	SOLDERBALL	Silver (Ag)	7440-22-4		0.156	mg	35000	1408				
ENCAPSULATION (GE-100LFC5)	M-011 Other inorganic materials	64.877	mg	supplier	MOLDING COMPOUND	Silica fused (SiO2)	60676-86-0		58.072	mg	900000	522227				
				supplier	MOLDING COMPOUND	Epoxy resin	Proprietary		3.062	mg	45000	27538				
				supplier	MOLDING COMPOUND	Phenol resin	Proprietary		2.722	mg	40000	24478				
				supplier	MOLDING COMPOUND	Metal Hydroxide	Proprietary		0.680	mg	10000	6120				
				supplier	MOLDING COMPOUND	Carbon black	1333-86-4		0.340	mg	5000	3060				