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LITHIUM STABILISED SODIUM BETA" ALUMINA CERAMIC (ZIRCONIA STRENGTHENED)

A. DRAWING REFERENCE Drawing to be agreed with customer

B. DESCRIPTION A thin-walled ceramic crucible, tube or disc.

C. SPECIAL REQUIREMENTS

MAJOR CONSTITUENTS	:	<u>Component</u>	Nominal (^w /o)	Range ("/o)		
		Na_2O Li_2O ZrO_2 AI_2O_3	8.40 0.70 6.00 84.90	8.20 - 8.60 0.60 - 0.85 5.00 - 7.00 83.5 - 86.5		

 $\text{Na}_2\text{O},\,\text{ZrO}_2$ and Al_2O_3 determined by X-ray fluorescence (Ionotec Test Method 301-09005).

Li₂O determined by XRD (Ionotec Test Method 301-09003)

TRACE IMPURITIES Component **Maximum Limit ("/o)** 0.06 SiO2 0.04 $Fe_2\bar{O}_3$ Cr_2O_3 0.04 ΝίΌ 0.04 0.02 0.02 K_2O

CaO

Determined by X-ray fluorescence (Ionotec Test Method

301-09005).

Range (w/o) **CRYSTAL STRUCTURE** Component

> Beta" Alumina NaAlO₂ Beta Alumina 90-95 0-1 Balance

Beta" alumina content determined by X-ray diffraction (Ionotec Test Method 301-09003).

 $NaAlO_2$ content determined by water extraction (Ionotec Test Method 301-09007).

Maximum Grain Size (nominal): 30μ. Typical Matrix Grain Size: 2-3µ.

OTHER PHYSICAL

PROPERTIES

Density: \geq 3.330g/cm³

Determined by displacement (Ionotec Test Method 301-09006).

Resistivity at 350°C: 3.0 - 5.0 ohm.cm

APPEARANCE - VISIBLE

LIGHT

The components to be free from defects of the form

identified in Appendix A.

Determined by white light or in ambient light in accord with the relevant

Operating Instructions.

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APPEARANCE	- DYE TE	The components to be free from defects of Appendix B.								of th	e form	identified	in
			De Op	etermined boerating Ins	y dy truc	e test/UV tions.	/ in:	spo	ection in a	ассо	rd with	the releva	ant
D. PROCESSING		:	Pro In	ocessing to structions.	be	carried o	ut i	n a	accord wit	h re	levant (Operating	
E. <u>SUPPLIER</u>		:	No	t applicable	e ; n	nanufactu	ırec	d ir	n-house.				
F. PACKAGING													
FOR USE OFF	SITE	:	Со	mponents	to b	e sealed	her	me	etically an	d in	accord	with cus	tomer
G. <u>LABELLING</u>			re	quirements	6								
FOR USE OFF	SITE	:	αι	ich containe uantity and ust also be	bato	ch numbe	led er. C	to Oth	identify coner custon	omp ner l	onent, abellin	drawing r g requirer	number, nents
H. TRACEABILIT	<u>Y</u>												
FOR USE OFF	SITE	:	Dif se qu	fferent batclegregated suantity.	hes o th	to be pac nat they a	cka re c	ge	d in sepai arly identi	rate fiabl	contair e by ba	ners or otl itch numb	nerwise per and
I. CERTIFICATION	<u>N</u>	:	ln :	accord with	cu	stomer re	qui	irei	ments.				
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APPENDIX A

VISIBLE LIGHT INSPECTION

Determined by white light and in ambient light - all visual inspection to be conducted with the naked eye or, if necessary, wearing spectacles prescribed by an optician for close work.

A1. DETERMINED USING AMBIENT LIGHT

Determined using ambient light, is defined as inspection under room lighting.

REJECT CLASSIFICATIONS

Discolouration* Large areas of surface discolouration with clearly visible colour or contrast.

White Marks White marks on the external base of the electrolyte.

Large inclusions in the $\underline{\text{body}}$ of the electrolyte which give an area of clearly visible colour. Inclusions³

Electrolyte with an overall bluish hue is acceptable provided that the chemical analysis of the batch, as determined by XRF, conforms to the specification included in M249.

A2. DETERMINED USING WHITE LIGHT

Determined using white light, is defined as inspection in a darkened booth using a 275W radiographic white light box.

REJECT CLASSIFICATIONS

Holes* Holes visible from both sides of the electrolyte.

Cracks Any cracked shape.

Large chips in the open end of the electrolyte, extending >1mm down from the open end. Chips^{*} (a)

Chips which extend <1mm down from the open end which retain dye (b) during dye testing (Appendix B) i.e. there is cracking associated with the

chipped edge.

Shadows Dark shadows in the base of the electrolyte.

Flaking Large areas of flaking on internal and external surfaces.

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APPENDIX B							
DYE TEST/UV INSPECTION							
DEFECTS RESULTING IN REJECTION ⁽¹⁾							
Any pinholes on the surface of the shape retaining yellow colour in contrast to the background.							
Any cracks retaining yellow colour in contrast to the background							

Any yellowish background sufficient to mask surface defects.

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Shapes to be examined against a non-fluorescent background.

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