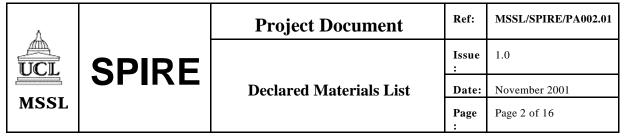
MULLARD SPACE SCIENCE LABORATORY LINIVERSITY COLLEGE LONDON Author:

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SPIRE - STRUCTURE DECLARED MATERIALS

Document Number: MSSL/SPIRE/PA002.1 29 November 2001

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Change Record

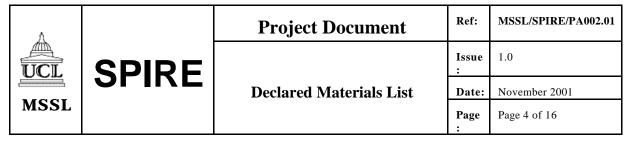
ISSUE	Date	Brief description of change
0.1	September 2001	New document
1.0	November 2001	Issued and Updated



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- 2. Reference documents
- 3. The Declared Materials Tables



1. INTRODUCTION

This document identifies the material types that will be used in the SPIRE structure, as designed and built by MSSL. The data is based on mature designs and is practically complete.

This document has been used to identify all the materials used by MSSL only.

2. REFERENCE DOCUMENTS

All documents are listed in Figure 3.2 of the CIDL.

3. THE DECLARED MATERIALS LISTS



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PROJECT: Herschel/SPIRE

EXPERIMENT:

EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)

CATE	CATEGORY: 1. Aluminium and Aluminium Alloys												
Itm	Commercial	Chemical Nature	Procurement	Summary of	Use &	Environmental		Environmental	Environmental	Use & Environmental	Size	Approval	ESA
No	Identification	Type of Product	Info., Supplier	Processing	Location	Code			Code	Status	Comments		
		Form & Condition	Spec. Issue	Parameters		R A T	R A T	R A T	R A T	R A T			
1.	Aluminium	6082-T6	J Smith & Sons	Alocrom 1200		В	V	3/4	W4				
	alloy 6082	Commercial product	London UK	Chemglaze-									
		Extrusion/plate & rod	BS 1470/1474	Z306									
		_		Anodised-									
				chromic acid									



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PROJECT: Herschel/SPIRE

EXPERIMENT:

EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)

CATE	CATEGORY: 2. Copper and copper alloys										
Itm	Commercial	Chemical Nature	Procurement	Summary of	Use &	Envir	onment	al	Size	Approval	ESA
No	Identification	Type of Product	Info., Supplier	Processing	Location	Code	Code		Code	Status	Comments
		Form & Condition	Spec. Issue	Parameters		R	A	T			
1.	Beryllium	Commercial product	Anderton	N/A		В	V	3/4	W0		
	copper		Bradford, UK								
			N 1400-0018								



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PROJECT: Herschel/SPIRE

EXPERIMENT:

EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)

CATI	CATEGORY: 4. Titanium and titanium alloys										
Itm No	Commercial Identification	Chemical Nature Type of Product Form & Condition	Procurement Info., Supplier Spec. Issue	Summary of Processing Parameters	Use & Location	Environmental Code R A T		Code		Approval Status	ESA Comments
1.	Titanium TI-6Al-4V	TI-6Al-4V, Ti alloy Commercial product 6STA Rod	Dornier			В	V	3/4	W2		



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PROJECT: Herschel/SPIRE

EXPERIMENT:

EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)

CATE	CATEGORY: 6. Stainless steels										
Item	Commercial	Chemical Nature	Procurement	Summary of	Use &	Envir	onment	al	Size	Approval	ESA
No	Identification	Type of Product	Info., Supplier	Processing	Location	Code			Code	Status	Comments
		Form & Condition	Spec. Issue	Parameters		R	A	T			
1.	Stainless steel	Commercial product	Various	N/A		В	V	3/4	W2		
	AISI 321	AISI 321 S12/S20	BS 1449								
			Barden Corp,								
			Plymouth								
			Devon, UK								



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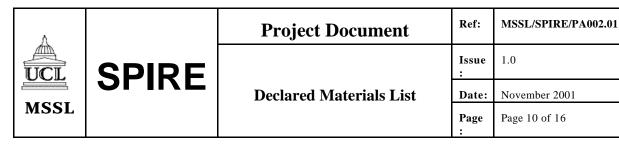
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135UC 110 1		

PROJECT: Herschel/SPIRE

EXPERIMENT:

EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)

CAT	CATEGORY: 7. Filler metals and solders										
Itm	Commercial	Chemical Nature	Procurement	Summary of	Use &	Envir	onment	al	Size	Approval	ESA
No	Identification	Type of Product	Info., Supplier	Processing	Location	Code			Code	Status	Comments
		Form & Condition	Spec. Issue	Parameters		R	A	T			
1.	Solder, Elsold	63/37 Sn/Pb eutectic Rosin cored Commercial product Extrusion	Bleiwerk Goslar 63 tin solder eutectic as in ESA PSS-01-708	Hand soldering of PCB's	All PCB's	В	V	3/4	W2		



Issue	e No 1		DECLARED MATERIALS LIST					MSSL/SWT-UVOT/PA003		
PROJ	ECT:	SWIFT								
EXPE	RIMENT:	UVOT								
EXPE	RIMENTER:	MULLARD SPACE SC	ENCE LABORATO	ORY (MSSL)						
PREP	PREPARED BY: A P Dibbens									
CATE	CATEGORY: 10. Adhesives, coatings and varnishes									
Itm	Commercial	Chemical Nature	Procurement	Summary of	Use &	Environmental	Size	Approval	ESA	
No	Identification	Type of Product	Info., Supplier	Processing	Location	Code	Code	Status	Comments	
		Form & Condition	Spec. Issue	Parameters		R A T				

٨		Project Document	Ref:	MSSL/SPIRE/PA002.01
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1.	Scotch Weld	Commercial product	3 M's	Mix 1:1 by mass	Secure	В	V	3/4	W1	
	1838	2 part, epoxy	Adhesive	Cure 4hrs @	magnets					
		adhesive	Supplies	60°C	in dichroic					
					assembly,					



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		1

PROJECT: Herschel/SPIRE

EXPERIMENT:

EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)

CATE	GORY: 12. Pa	ints, primers and inks																									
Itm	Commercial	Chemical Nature	Procurement	Summary of	Use &	Envir	onment	al	Size	Approval	ESA																
No	Identification	Type of Product	Info., Supplier	Processing	Location	Code		Code		Code	Code		de		de			2		ode		Code		ode	Code	Status	Comments
		Form & Condition	Spec. Issue	Parameters		R	A	T																			
2.	Anodising	Commercial product	Ingram & Glass,	N/A		В	V	3/4	A3																		
		Chromic acid process	Godalming, UK																								
			DEF STN 0324																								
		Chromating																									
3.	Alocrom 1200	Commercial product	MSSL	N/A		В	V	3/4	A3																		
		Polyvinyl butyral																									
4.	Chemglaze	resin - Primer	Hughson	N/A		В	V	3/4	A4																		
	9924		Chemicals																								
			US																								
							V	3/4																			
						BB																					



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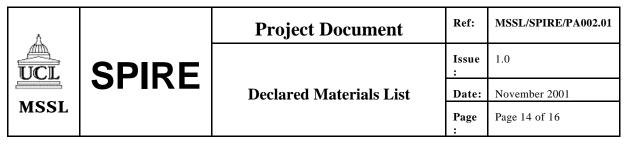
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PROJECT: Herschel/SPIRE

EXPERIMENT:

EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)

CATE	GORY: 18. Th	nermoset plastics									
Itm	Commercial	Chemical Nature	Procurement	Summary of	Use &	Envir	onment	tal	Size	Approval	ESA
No	Identification	Type of Product	Info., Supplier	Processing	Location	Code	Code		Code	Status	Comments
		Form & Condition	Spec. Issue	Parameters		R	A	T			
1.	Vespel SP 1	Polyimide	Du Pont USA	N/A	High	В	V	3/4	W2		
		Commercial product	Vespel SP 1		voltage						
		Unfilled base resin			xformer in						
		Bar			Blue						
					Module						
2.	Kapton	Polyimide tape Y966	Du Pont USA	N/A	Over	В	V	3/4	W1		
		acrylic adhesive	(HPC Stevenage,		heaters for						
		coated.	UK)		thermal						
		Commercial product			control etc						
3.	PTFE	PTFE	Du Pont USA	N/A	Spacers	В	V	3/4	W1		
		Commercial product									
		Plate									



											14
4.	Kapton H	Polyimide adhesive coated film	Du Pont	N/A	Xformer insulation in TMPSU	В	V	3/4	W0		

<u>Issue No</u> 1 <u>DECLARED MATERIALS LIST</u> MSSL/SPIRE/PA002

PROJECT: Herschel/SPIRE

EXPERIMENT:

EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)

CATE	CATEGORY: 19. Wires and cables										
Itm	Commercial	Chemical Nature	Procurement	Summary of	Use &	Environmental			Size	Approval	ESA
No	Identification	Type of Product	Info., Supplier	Processing	Location	Code			Code	Status	Comments
		Form & Condition	Spec. Issue	Parameters		R	A	T			
1.	PTFE	Pure PTFE coated,	Cabletec UK	Hand soldering		В	V	3/4	W4		
	insulated	tin plated copper	Filotex France	Crimping							
	copper wire	wire.	ESA/SCC 3901/								
		Commercial product	013								
		Single strand,									
		shielded and twisted									



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2.	Enamelled conductor	Polyurethane coated copper wire	BICC Connollys UK BICOSOL, grade 2 also Alcatel- Copper	Fabrication of high voltage transformers & inductors		В	V	3/4	W2			
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Issue No 1	<u>DECLARED MATERIALS LIST</u>	MSSL/SPIRE/PA002

PROJECT: Herschel/SPIRE

EXPERIMENT:

EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)

CATE	CATEGORY: 20. Miscellaneous non-metallic materials										
Itm	Commercial	Chemical Nature	Procurement	Summary of	Use &	Enviro	Environmental		Size	Approval	ESA
No	Identification	Type of Product	Info., Supplier	Processing	Location	Code			Code	Status	Comments
		Form & Condition	Spec. Issue	Parameters		R	A	T			
1.	Barden	Teflon coated glass	Barden Corp	N/A		В	V	3/4	W1		
	patented matl.	fibres impregnated	Plymouth								
	Bartemp	with MoS ₂	Devon UK								
	Bearings	_									

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2.	Duroid material	Duroid	SNFA Bearings, Glos. UK	N/A	В	V	3/4	W1		
3.	Gudebrod 450X	Lacing cord	Gudebrod Inc US	N/A	В	V	3/4	W1		