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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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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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Issue No 1		DECLARED MATERIALS LIST						MSSL/SPIRE/PA002.1			
PROJECT: Herschel/SPIRE EXPERIMENT: EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)											
PREPARED BY: A P Dibbens											
CATEGORY: 1. Aluminium and Aluminium Alloys											
Item No	Commercial Identification	Chemical Nature Type of Product Form & Condition	Procurement Info., Supplier Spec. Issue	Summary of Processing Parameters	Use & Location	Environmental Code			Size Code	Approval Status	ESA Comments
						R	A	T			
1.	Aluminium alloy 6082	6082-T6 Commercial product Extrusion/plate & rod	J Smith & Sons London UK BS 1470/1474	Alocrom 1200 Chemglaze-Z306 Anodised-chromic acid		B	V	3/4	W4		

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Issue No 1		DECLARED MATERIALS LIST						MSSL/SPIRE/PA002			
PROJECT: Herschel/SPIRE EXPERIMENT: EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)											
PREPARED BY: A P Dibbens											
CATEGORY: 2. Copper and copper alloys											
Item No	Commercial Identification	Chemical Nature Type of Product Form & Condition	Procurement Info., Supplier Spec. Issue	Summary of Processing Parameters	Use & Location	Environmental Code			Size Code	Approval Status	ESA Comments
						R	A	T			
1.	Beryllium copper	Commercial product	Anderton Bradford, UK N 1400-0018	N/A		B	V	3/4	W0		


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PROJECT: Herschel/SPIRE EXPERIMENT: EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)											
PREPARED BY: A P Dibbens											
CATEGORY: 4. Titanium and titanium alloys											
Item No	Commercial Identification	Chemical Nature Type of Product Form & Condition	Procurement Info., Supplier Spec. Issue	Summary of Processing Parameters	Use & Location	Environmental Code			Size Code	Approval Status	ESA Comments
						R	A	T			
1.	Titanium TI-6Al-4V	TI-6Al-4V, Ti alloy Commercial product 6STA Rod	Dornier			B	V	3/4	W2		

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PROJECT: Herschel/SPIRE EXPERIMENT: EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)											
PREPARED BY: A P Dibbens											
CATEGORY: 6. Stainless steels											
Item No	Commercial Identification	Chemical Nature Type of Product Form & Condition	Procurement Info., Supplier Spec. Issue	Summary of Processing Parameters	Use & Location	Environmental Code			Size Code	Approval Status	ESA Comments
						R	A	T			
1.	Stainless steel AISI 321	Commercial product AISI 321 S12/S20	Various BS 1449 Barden Corp, Plymouth Devon, UK	N/A		B	V	3/4	W2		


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PROJECT: Herschel/SPIRE EXPERIMENT: EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)											
PREPARED BY: A P Dibbens											
CATEGORY: 7. Filler metals and solders											
Item No	Commercial Identification	Chemical Nature Type of Product Form & Condition	Procurement Info., Supplier Spec. Issue	Summary of Processing Parameters	Use & Location	Environmental Code			Size Code	Approval Status	ESA Comments
						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	B	V	3/4	W2		


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Issue No 1		<u>DECLARED MATERIALS LIST</u>					MSSL/SWT-UVOT/PA003		
PROJECT: SWIFT EXPERIMENT: UVOT EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)									
PREPARED BY: A P Dibbens									
CATEGORY: 10. Adhesives, coatings and varnishes									
Item 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	Size Code	Approval Status	ESA Comments


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1.	Scotch Weld 1838	Commercial product 2 part, epoxy adhesive	3 M's Adhesive Supplies	Mix 1:1 by mass Cure 4hrs @ 60°C	Secure magnets in dichroic assembly,	B	V	3/4	W1		
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PROJECT: Herschel/SPIRE EXPERIMENT: EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL) PREPARED BY: A P Dibbens											
CATEGORY: 12. Paints, primers and inks											
Item No	Commercial Identification	Chemical Nature Type of Product Form & Condition	Procurement Info., Supplier Spec. Issue	Summary of Processing Parameters	Use & Location	Environmental Code			Size Code	Approval Status	ESA Comments
						R	A	T			
2.	Anodising	Commercial product Chromic acid process	Ingram & Glass, Godalming, UK DEF STN 0324	N/A		B	V	3/4	A3		
3.	Alocrom 1200	Chromating Commercial product	MSSL	N/A		B	V	3/4	A3		
4.	Chemglaze 9924	Polyvinyl butyral resin - Primer	Hughson Chemicals US	N/A		B	V	3/4	A4		
						BB	V	3/4			

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PROJECT: Herschel/SPIRE EXPERIMENT: EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)											
PREPARED BY: A P Dibbens											
CATEGORY: 18. Thermoset plastics											
Item No	Commercial Identification	Chemical Nature Type of Product Form & Condition	Procurement Info., Supplier Spec. Issue	Summary of Processing Parameters	Use & Location	Environmental Code			Size Code	Approval Status	ESA Comments
						R	A	T			
1.	Vespel SP 1	Polyimide Commercial product Unfilled base resin Bar	Du Pont USA Vespel SP 1	N/A	High voltage xformer in Blue Module	B	V	3/4	W2		
2.	Kapton	Polyimide tape Y966 acrylic adhesive coated. Commercial product	Du Pont USA (HPC Stevenage, UK)	N/A	Over heaters for thermal control etc	B	V	3/4	W1		
3.	PTFE	PTFE Commercial product Plate	Du Pont USA	N/A	Spacers	B	V	3/4	W1		

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4.	Kapton H	Polyimide adhesive coated film	Du Pont	N/A	Xformer insulation in TMPSU	B	V	3/4	W0		
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PROJECT: Herschel/SPIRE EXPERIMENT: EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)											
PREPARED BY: A P Dibbens											
CATEGORY: 19. Wires and cables											
Item 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			Size Code	Approval Status	ESA Comments
1.	PTFE insulated copper wire	Pure PTFE coated, tin plated copper wire. Commercial product Single strand, shielded and twisted	Cabletec UK Filotex France ESA/SCC 3901/013	Hand soldering Crimping		B	V	3/4	W4		

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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		B	V	3/4	W2		
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PROJECT: Herschel/SPIRE EXPERIMENT: EXPERIMENTER: MULLARD SPACE SCIENCE LABORATORY (MSSL)											
PREPARED BY: A P Dibbens											
CATEGORY: 20. Miscellaneous non-metallic materials											
Item No	Commercial Identification	Chemical Nature Type of Product Form & Condition	Procurement Info., Supplier Spec. Issue	Summary of Processing Parameters	Use & Location	Environmental Code			Size Code	Approval Status	ESA Comments
						R	A	T			
1.	Barden patented matl. Bartemp Bearings	Teflon coated glass fibres impregnated with MoS ₂	Barden Corp Plymouth Devon UK	N/A		B	V	3/4	W1		

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