

Herschel/SPIRE

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MULLARD SPACE SCIENCE LABORATORY

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SPIRE – STRUCTURE DECLARED PROCESSESS LIST

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| 0.1 | September 2001 | New document |
| 2 | 22 November 2002 | Issued |
| 3 | January 2003 | Updated with Silver Soldering |

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Glossary

All terms are listed in the CIDL.

1 Scope of Document

This document presents all the processes to be used all along the design, development and manufacture of the structure for SPIRE.

2. Applicable and Reference Documents

All documents are listed in Figure 3.2 of the CIDL.

3 Declared Processes List

The Structure Declared Processes List, which consists of multiple arrays of 10 columns which shall be completed as indicated in AD04, is presented here below:

Processes should be grouped in the table below:

| <i>Group Type</i> | <i>Used</i> |
|-------------------------------------|-------------|
| 1. Adhesive Bonding | ✓ |
| 2. Composite Manufacturing | N/A |
| 3. Encapsulation/Molding | N/A |
| 4. Painting/Coating | ✓ |
| 5. Cleaning | ✓ |
| 6. Welding/Brazing | ✓ |
| 7. Crimping/Stripping/Wire Wrapping | ✓ |
| 8. Soldering | N/A |
| 9. Surface Treatment | N/A |
| 10. Plating (Allo-chroming) | ✓ |
| 11. Machining | ✓ |
| 12. Forming | ✓ |
| 13. Heat Treatment | ✓ |
| 14. Special Fabrication | N/A |
| 15. Marking | ✓ |
| 16. Miscellaneous Processes | N/A |
| 17. Inspection Procedure | ✓ |

| Issue No 3 | | <u>DECLARED PROCESSES LIST</u> | | | | | | | |
|--|------------------------------|---|---|---|-----------|------------------------|------------------------|-----------------|--------------|
| <p>PROJECT: HERSCHEL EXPERIMENT: SPIRE EXPERIMENTERS: MULLARD SPACE SCIENCE LABORATORY (MSSL)</p> <p>PREPARED BY: C Brockley-Blatt</p> | | | | | | | | | |
| Itm No | Process | Specification | Description/ identification | Use and location | User code | Associated DML items | Criticality of process | Approval Status | ESA Comments |
| 1. | Scotch Weld 1838 | Commercial 2 part epoxy adhesive | Epoxy adhesive 2 part 1:1 cure 4 hrs @ 60 C | | MSSL | 10-01 | Non-critical | | |
| 2. | Stycast 2850 FT Black | Commercial 2 part epoxy adhesive for cryogenics | | Internal and external wiring harness supports | MSSL | 10-02 | Non-critical | | |
| 3. | Chemglaze Z 306, L300 & Z307 | ECSS-Q-70-25/35 MSSL/ME/PS/P001 | Black paint polyurethane non-conducting | Finish on main structure | CYF & SNL | 01-01,02, 01-03, 12-04 | Non-critical | | |
| 5. | Crimp connections | ECSS-Q-70-26 | Fabrication of wiring harnesses | Internal and external wiring harnesses | MSSL | 19-01 | Non-critical | | |
| 6. | Alocrom 1200 | MOD 03-18 | Chromating - Commercial process | Various | MSSL | 01-01,02, 01-03 | Non-critical | | |

| Issue No 3 | | <u>DECLARED PROCESSES LIST</u> | | | | | | | |
|--|---------------------|--------------------------------|--|---------------------------------------|-----------|----------------|------------------------|-----------------|--------------|
| <p>PROJECT: HERSCHEL EXPERIMENT: SPIRE EXPERIMENTERS: MULLARD SPACE SCIENCE LABORATORY (MSSL) PREPARED BY: C Brockley-Blatt</p> | | | | | | | | | |
| Item No | Process | Specification | Description/identification | Use and location | User code | Associated DML | Criticality of process | Approval Status | ESA Comments |
| 7. | Anodising | DEF STAN 0324 | Chromic acid process | Gear - dichroic assembly | I & G | 01-03 12-02 | Non-critical | | |
| 8. | Heat Treatment T 73 | Mil-H-6088-F | Thermal treatment | Treatment for aluminium | SNL | 01-01 | Non-critical | | |
| 9 | Silver Soldering | MSSL In-House Procedure | Brazing using a 55% silver solder (rest is zinc, copper and Tin) | Thermal joints on the thermal bus bar | MSSL | 07-01 | Non-critical | | |