G037

MSFC-SPEC-1918B
July 22, 1992

NASA
National Aeronautics and
Space Administration

George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

ABLATIVE COMPOUND, THERMAL

Prepared by
Materials & Processes Laboratory
George C. Marshall Space Flight Center

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Release Date: ___/___/___

Marshall Space Flight Center

SPECIFICATION/DOCUMENT CHANGE INSTRUCTION

Page 1 of 1

Copy No.:

Spec./Doc. No. MSFC-SPEC-1918

Change No./Date	SCN/DCN No./Date	CCBD No./Date	Replacement Page Instructions
-/1/22/91			BASELINE INITIAL RELEASE
A -/8-26-91	1 8/26/91	—	A Revision
2/7-24-92	2 2/7-24-92	-	**B Revision**
3 7-29-93	3 7-29-93	-	REPLACE PAGE 11
	4	-	REPLACE PAGES 1, 3, 6, 9, & 11 WITH NEW PAGES 1, 3, 6, 9, & 11

8/8/91 EH RELEASE

8/27/91 EH

7/31/92 EH RELEASE

8/5/93 EH RELEASE

NHP 05/26/00 RELEASE

MSFC-Form 4140 (Revised September 1990)

NOTE: After revising the document, file this sheet in document preceeding Table of Contents

Marshall Space Flight Center

SPECIFICATION CHANGE NOTICE/ DOCUMENT CHANGE NOTICE

Date: 5-12-00

Spec./Doc. No.: MSFC-SPEC-1918B

SCN/DCN. No. SCN 4

ECR No.: MP41-2184	PCN: 82541	Contract No.
CCBD No./Date: SB3-01-5333 & A rev SM3-01-5476	Page Number (s): Pages 1,3,6,9 & 11	

Effectivity(ies): NFS

Description of Change:

Incorporate changes for MP41-2184/CCBD's SB3-01-5333, SB3-01-5333A & SM3-01-5476.

MSFC-SPEC-1918B
July 22, 1992

Prepared by	EH33 Organization	7/22/92 Date
Approved by	EH31 Organization	7/22/92 Date
Approved by	EH-01 Organization	7/22/92 Date

STRESS

7/30/92

MATERIALS

7/24/92

GEORGE C. MARSHALL SPACE FLIGHT CENTER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
SPECIFICATION

ABLATIVE COMPOUND, THERMAL

This specification has been approved by the George C. Marshall Space Flight Center (MSFC) and is available for use by MSFC and associated contractors.

1.0 SCOPE

This specification establishes basic requirements for a trowellable, thermal ablative compound, a closeout and patching material for Thermal Protection Systems. Refer to MSFC-QPL-1918 for a list of qualified materials which conform to these specification requirements.

2.0 APPLICABLE DOCUMENTS

2.1 GOVERNMENT DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposals shall apply.

STANDARDS

FEDERAL

FED-STD-313	Symbols for Packaging and Containers for Hazardous Industrial Chemicals and Materials
ANSI-ASQC Standard Z1.4-1993	Sampling Procedures and Tables for Inspection by Attributes

SCN .004

SPECIFICATIONS

GEORGE C. MARSHALL SPACE FLIGHT CENTER

MSFC-QPL-1918	Qualified Products List, Products Qualified Under George C. Marshall Space Flight Center Specification MSFC-SPEC-1918 Ablative Compound, Thermal

Supercedes Page 1, Dated July 1992

PUBLICATIONS

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

Occupational Safety and Health Administration Publication Code of Federal Regulations; Title 29 - Labor Chapter XVII (Occupational Health and Safety Administration, Department of Labor, Part 1210.33)

(Application for copies should be addressed to the Occupational Safety and Health Administration, Department of Labor, Washington, D.C. 20212.)

2.2 NON-GOVERNMENT DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposals shall apply.

STANDARDS

American Society for Testing and Materials (ASTM)

ASTM D 638	Standard Test Method for Tensile Properties of Plastics
ASTM D 1623	Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
ASTM D 2240	Rubber Properties - Durometer Hardness, Test for

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.)

3.0 REQUIREMENTS

3.1 MATERIAL

The material is a three-part, smooth paste, adhesive system composed of ablative filler, an epoxy resin and an amine-type curing agent. The material constituents shall conform to Table I and shall be capable of meeting the requirements of this specification.

3.1.1 Formulation for Mixing

TABLE I – ABLATIVE COMPOUND MIX RATIO

MATERIAL	PARTS BY WEIGHT MINIMUM	PARTS BY WEIGHT MAXIMUM
Polyamide resin, hardener, Part A	99	101
Epoxy resin, Part B	74	76
Ablative Filler, Part C	24	26

3.2 CHEMICAL AND PHYSICAL PROPERTIES

The material's chemical and physical properties shall conform to the requirements of Table II. The applicable test methods shall be as specified in 4.7.

TABLE II – CHEMICAL AND PHYSICAL PROPERTIES

PROPERTIES	REQUIRED VALUE
Specific Gravity (at 60°F minimum)	0.55 – 0.68
Solids Content, %	100
Hardness, Shore D (Minimum)	15
Tensile Strength: ASTM D638 Maximum stress, psi	150 minimum
Tensile Strength: ASTM D1623 Maximum stress, psi	100 minimum
Pot Life	45 minutes at 77 ± 2°F
Cure Time, hours (minimum shore D of 15 Per 4.7.3 required)	a. 18 maximum at 80 ± 5°F b. 72 maximum at 45 ± 5°F
Shelf Life	12 months from date of manufacture in original unopened container stored at 80°F maximum
Thermogravimetric Analysis	Per Figure 1 and 4.7.9

SCN 004

Supercedes Page 3, Dated July 1992

NOTE : ±10% OF NOMINAL TGA VALUES REPRESENTED

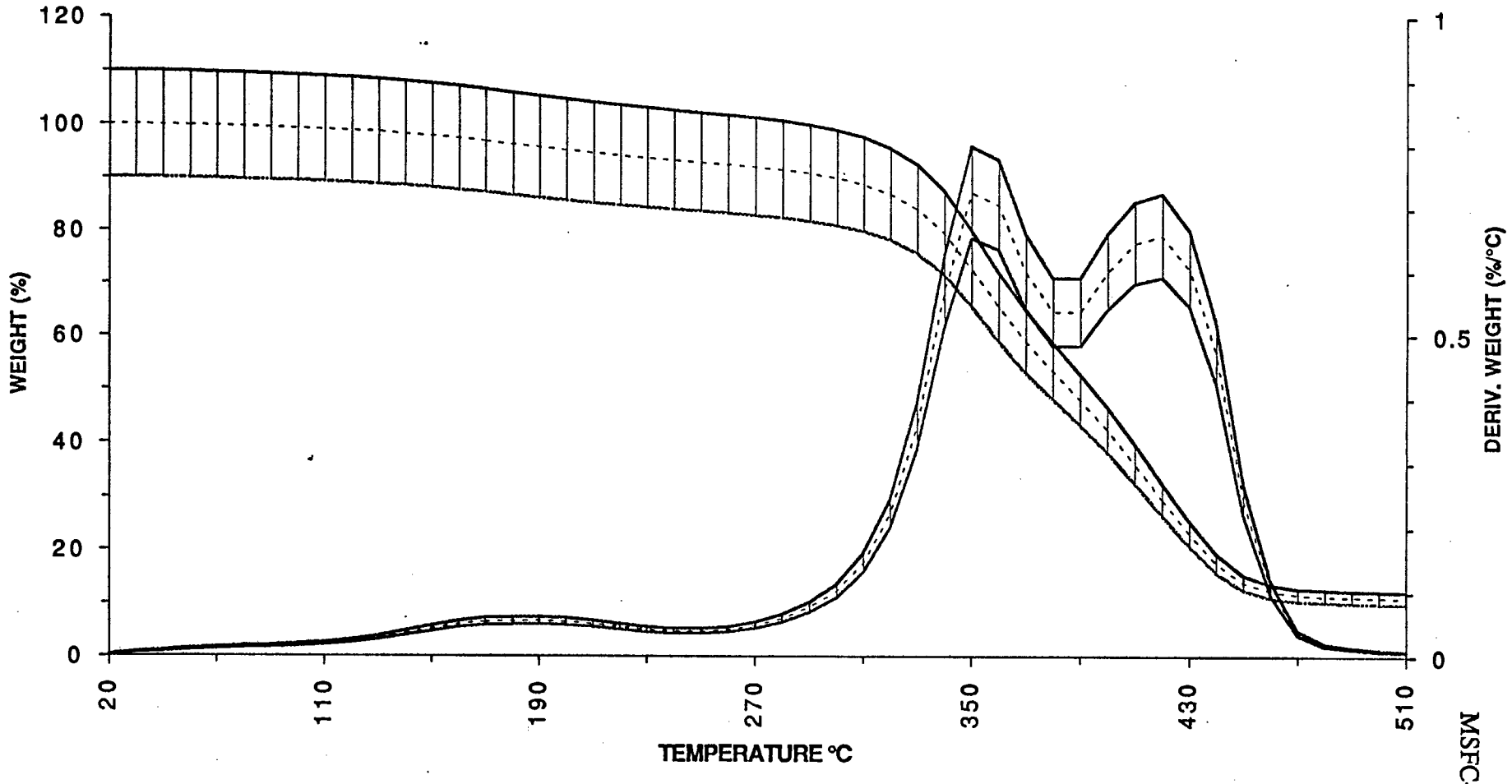

Figure 1. Ablative Compound TGA Graph

3.3 KITS

The materials shall be furnished in kit form. The polyamide resin hardener (Part A), epoxy resin (Part B), and ablative filler (Part C) shall be packaged separately. One container of hardener shall contain the quantity of hardener required for the one container of resin material and the one container of ablative filler.

3.4 WORKMANSHIP

Workmanship shall be such that the ablative compound ingredients (Part A, Part B, and Part C) are uniform in appearance(with the unaided eye) and free from visible contamination.

3.5 SAFETY REQUIREMENTS

3.5.1 Hazardous Materials Identification and Marking Requirements

A. At the time of submittal of the product for qualification, the manufacturer shall submit a Material Safety Data Sheet in accordance with Federal Standard 313 if the material fits any of the categories as defined in Table I of Appendix A of the standard or, upon review of the standard, the material is defined as hazardous. The manufacturer shall also describe on the Material Safety Data Sheet itself, or by attached illustration, the Hazard Identification Symbol that would be used if a requirement were established to mark the product in accordance with Federal Standard 313.

B. If the material does not require a Safety Data Sheet, the manufacturer shall, at the time of submittal of the material for qualification, verify in writing that the product has been evaluated in accordance with Federal Standard 313 and does not require either a Material Safety Data Sheet or a hazardous label.

C. The Material Safety Data Sheet is required to be on file at the procuring activity.

3.5.2 Occupational Safety and Health Standards Requirements

A. At the time of submittal of the product for qualification, the manufacturer shall verify in writing that the product does, or does not, contain materials in the concentrations defined as harmful in Title 29, Code of Federal Regulations, Part 1910.93 C through P.

B. If the product does contain material defined as harmful, complete instructions shall be submitted for personnel safety, storage, handling, and use of the product, as well as disposal or the cleaning of the container and implement used to apply the material.

C. If the material as submitted does not contain material defined as harmful, but does utilize in the formulation materials in sufficient quantity as to be defined as harmful, the manufacturer shall indicate by chemical name and trade name, if applicable, the specific ingredient.

3.6 SHELF LIFE EXTENSION REQUIREMENTS (APPLICABLE TO THE PROCURING ACTIVITY ONLY)

Allowable shelf life extension shall be 6 months from the date of test in original sealed container provided storage requirements have been met and the following test requirements performed and determined acceptable. The new expiration date must be within 3 times the original shelf life. The sampling plan shall be per 4.5.4.

RECERTIFICATION TEST	TEST METHOD	TEST SAMPLES REQUIRED PER KIT
Tensile Adhesion	4.7.4.2*	3
Specific Gravity	4.7.2	3
Hardness	4.7.3	1

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4.0 QUALITY ASSURANCE PROVISIONS

4.1 IN-PROCESS MATERIAL (APPLICABLE TO USERS DURING RECEIVING INSPECTION)

When the vendor container is opened at the user's site, the material is regarded as In-process material. In-process material can be used up to its certified shelf life provided that normal precautions are taken for handling and storage, including those precautions cited below.

A. When in-process material is not in use, the material's container shall be closed immediately in a manner as closely as possible to its original state. Opening of containers for inspection of contents shall be limited to less than ten (10) minutes.

B. Said container shall be stored in a safety approved location within a vented facility, away from direct sun or rain.

C. This material shall only be used as entire kits. Mixing of partial kits shall not be allowed.

D If the integrity of in-process material is at any time suspect (e.g. crust formation, change of color, and cloudiness), then the material in question shall be either recertified or discarded.

4.2 GENERAL PROVISIONS

The vendor shall provide and maintain a quality control system in accordance with the requirements of the purchase document. Vendors shall submit only those materials which meet the requirements of this specification.

4.3 RESPONSIBILITY FOR INSPECTION AND TESTS

4.3.1 Vendor

The vendor is responsible for the performance of all inspection and test requirements as specified herein. Unless otherwise indicated, the vendor may utilize his own or any other inspection facilities and services acceptable to the procuring activity. Records of the examination and tests shall be transported to the procuring activity with the material.

The vendor shall notify the procuring activity of any changes in formulation or procedures used in product manufacture.

4.3.2 Procuring Activity

The procuring activity is responsible for the performance of receiving tests or verifying vendor certification data of the selected acceptance test data. Refer to 4.4 B. TABLE IV for required tests to be performed or verified.

Records of the tests shall be retained on file until the material performance has been completed.

4.4 CLASSIFICATION OF TESTS

The inspections and testing of the material shall be classified as follows:

A. Qualification Tests - Qualification tests are those tests conducted on samples of material to be considered for qualification as a satisfactory product prior to an invitation for bid. These shall include those test methods specified in 4.7. Other tests may be necessary depending on the specific application.

B. Acceptance Tests - Acceptance tests are those test methods performed on material manufactured and submitted for acceptance under contract. These shall include those test methods specified in 4.7 to meet the requirements of 3.1, TABLE I and 3.2, TABLE II. TABLE III identifies the tests the vendor and procuring activity shall perform (or verify vendor certification data) for receiving inspection.

TABLE III. ACCEPTANCE TESTS

PROPERTY	TEST METHOD	VENDOR	PROCURING ACTIVITY
Visual Examination	4.7.1	Test	Test or Check Certification Data
Specific Gravity	4.7.2	Test	Test or Check Certification Data
Hardness	4.7.3	Test	Test or Check Certification Data
Tensile Strength	4.7.4	Test	Test or Check Certification Data
Pot Life	4.7.5	Certify	Check Certification Data
Solids Content	4.7.6	Certify	Check Certification Data
Formulation	4.7.7	Certify	Check Certification Data
Cure Time	4.7.8	Certify	Check Certification Data
TGA	4.7.9	Test	Test or Check Certification Data
Shelf Life	4.7.10	Certify	Check Certification Data

4.5 SAMPLING PROVISIONS

4.5.1 Lot Definition

A lot of material shall be defined as consisting of all material made in the same production shift, from the same raw materials and by the same manufacturing process and submitted for acceptance at one time.

4.5.2 Sampling for Qualification

A quantity of material sufficient to perform the qualification tests of this specification shall be selected from each lot of material offered for qualification.

4.5.3 Sampling for Acceptance

The number of kits to be selected at random from the lot shall be in accordance with ANSI-ASQC Standard Z1.4-1993, single sampling plans for normal inspections, special level S-4, on each lot of material received except TGA testing in accordance with 4.7.9 shall be limited to one TGA test per lot. Each of the selected kits shall be tested in accordance with 4.4.B. SCN 004

4.5.4 Sampling for Recertification

The number of kits to be selected at random from each lot shall be in accordance with ANSI-ASQC Standard Z1.4-1993, single sampling plan for normal inspections, special level S-4. SCN 004

4.6 REJECTION

The entire lot of material shall be subject to rejection if a sample of material selected from that lot fails to meet any of the requirements specified herein.

4.7 TEST METHODS

The following test methods and procedures shall be used. Unless otherwise specified in the test or procedure description, all weights, volumes, temperatures, and times shall be measured to the nearest specified unit or decimal.

4.7.1 Visual Examination

The samples of resin, hardener, and ablative filler shall be visually (with the unaided eye) examined for conformance to 3.3 and 3.4. All samples of material shall be carefully examined with respect to requirements not specifically covered by testing. Individual containers shall be examined to determine conformance to the requirements of 3.3 and Section 5.

4.7.2 Specific Gravity

The specific gravity of the cured ablative compound shall be determined on 2-inch x 2-inch specimens cut from the test panels. The test environment temperature shall be 60°F minimum. A minimum of six specimens shall be used. The specimens shall be weighed on an analytical balance and the average thickness determined from five evenly spaced locations using a micrometer calibrated to 0.001 inch. The ablative compound shall then be removed from the sample substrate and the substrates reweighed, and remeasured for thickness. The ablative compound volume shall be calculated for each specimen and the specific gravity shall be calculated from the ablative compound weight and volume as follows:

VOLUME, $V = (TH_I - TH_S) \times L_1 \times L_2$

DENSITY, $D = (W_I - W_S)/V$

SPECIFIC GRAVITY = $D \times (.002205\ LB/GM \times 1728\ IN^3/FT^3)\ /62.43\ LB/FT^3$

WHERE

TH_I = AVERAGE THICKNESS OF SAMPLE WITH SUBSTRATE - (IN)

TH_S = AVERAGE THICKNESS OF SUBSTRATE AFTER THERMAL ABLATIVE COMPOUND REMOVAL- (IN)

L = LENGTH OF SAMPLE - (IN)

W_I = WEIGHT OF SAMPLE WITH SUBSTRATE - (GMS)

W_S = WEIGHT OF SUBSTRATE AFTER THERMAL ABLATIVE COMPOUND REMOVAL - (GMS)

4.7.3 Hardness

The hardness of the cured material shall be determined with a Shore D instrument, recording the instantaneous reading in accordance with ASTM D 2240.

4.7.4 Tensile Strength

The tensile strength of the cured thermal ablative compound shall be determined in accordance with ASTM D 638. A minimum of 6 specimens shall be selected at random. Maximum stress shall be determined utilizing a strain rate of 0.05 inches/ minute. Average values shall be used to determine conformance to the requirements of this specification.

4.7.4.1 Tensile Strength Per ASTM D638

The tensile strength of the cured thermal ablative compound shall be determined in accordance with ASTM D638. A minimum of 3 specimens shall be selected at random. Maximum stress shall be determined utilizing a strain rate of 0.2 inches/ minute. Average values shall be used to determine conformance to the requirements of this specification.

SCN 004

4.7.4.2 Tensile Strength Per ASTM D1623

The tensile strength of the cured thermal ablative compound shall be determined in accordance with ASTM D1623, Type B. Maximum stress shall be determined utilizing a strain rate of 0.05 inches/minute. Individual values shall be used to determine conformance to the requirements of the specification.

4.7.5 Pot Life

The vendor shall certify that the ablative compound has a pot life of 45 minutes Minimum at 77°F ± 2°F.

4.7.6 Solids Content

The vendor shall certify that the thermal ablative compound has a percent solids content of 100.

4.7.7 Formulation

The mix ratio of each kit of ablative compound shall be verified to the requirements of 3.1.1 by examination of the vendor component net weight markings as indicated in 5.2.e.

4.7.8 Cure Time

The Vendor shall certify that the ablative compound has a cure time as specified in 3.2, TABLE II.

4.7.9 Thermogravimetric Analysis (TGA)

TGA test performance and resulting data shall conform (± 10%) to Figure 1. The test is based on a sample size of 27 milligrams at a decomposition rate of 5° C per minute.

4.7.10 Shelf Life

The Vendor shall certify that the ablative compound has a shelf life as specified in 3.2, TABLE II.

5.0 PREPARATION FOR DELIVERY

5.1 PACKAGING AND PACKING

Unless otherwise specified in the purchase document, packaging and packing shall be in accordance with standard commercial practice and in conformance to federal and state regulations applicable to the type of material. Containers in the same shipment shall be of such construction and materials that the materials will be adequately protected against loss or contamination.

5.2 MARKING

Unless otherwise specified in the purchase document, each container shall be marked for identification and shipment in accordance with ICC regulations and shall include the following:

A. Vendor identification, lot number, and material name.
B. Date of manufacture.
C. Applicable safety warnings.
D. This specification number and revision letter.
E. Component net weight

6.0 NOTES

6.1 ORDERING DATA

Purchase documents shall specify as a minimum the following:

A. Title, number, and revision letter of this specification.
B. Number of copies of inspection and test data required.
C. Special packaging, packing, or shipping requirements (if applicable).
D. Data retention requirements.
E. Instructions applicable to certified reports.

6.2 DEFINITIONS

6.2.1 Pot Life

Pot life shall refer to the time between the addition of the hardener (Part A) to the resin (Part B) and the maximum time for ablative compound application. An acceptable method for verifying pot life is as follows: during the pot life the material shall be capable of being formed into a 0.005 inch thick bondline which when cured and tested for tensile adhesion (steel-to-steel) shall obtain 100 psi minimum.

6.2.2 Cure

The start of cure shall begin with the completion of ablative compound pot life. The completion of cure shall be the time at which a Shore D hardness of 15 minimum is verified per 4.7.3.

6.2.3 Vendor

Vendor shall be defined as the qualified manufacturer of the material.

6.3 MODIFICATION OR CHANGES

Recommendations for modifications or changes to the requirements specified herein shall be submitted in writing to MSFC for consideration.

NOTICE: When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever, and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

CUSTODIAN:

NASA-George C. Marshall
Space Flight Center

PREPARING ACTIVITY:

NASA-George C. Marshall
Space Flight Center

PACKAGE NO. 9245R

DOCUMENTATION RELEASE LIST
GEORGE C. MARSHALL SPACE FLIGHT CENTER

MSFC CODE IDENT 14981
ISSUE DATE MAY 26 2000

C H	DOCUMENT NUMBER	DRL DSH	DRL REV	TITLE	CCBD NO.	PCN	PC	EFFECTIVITY
*	MSFC-SPEC-1918	202 -		ABLATION COMPOUND, THERMAL, CORK FILLED	000-00-0000	0000000	M	1

CHG NO.	CHG REV	CHG NOTICE	RESPONSIBLE ENGINEER	RESPONSIBLE ORGANIZATION	ACTION DATE	DESCRIPTION
* 2	B	SCN002	DENNIS GRIFFIN	MP41	05/26/00	SCN002 - REVISION B TO SPECIFICATION. REV.B RELEASE DATE 07/31/92.
* 3	B	SCN003	DENNIS GRIFFIN	MP41	05/26/00	RELEASES CHANGE PAGE AS AUTHORIZED BY SCN003.
* 4	B	SCN004	DENNIS GRIFFIN	MP41	05/26/00	RELEASES CHANGES PAGES AUTHORIZED BY ECR MP41-2184, CCBD SB3-01-5333, SB3-01-5333A & SB3-01-5476.

CHECKER

DON HAMILTON
05/25/00

(FINAL)

PACKAGE NO. 10443R

DOCUMENTATION RELEASE LIST
GEORGE C. MARSHALL SPACE FLIGHT CENTER

MSFC CODE IDENT 14981/339B2
ISSUE DATE FEB 22 2007

C H	DOCUMENT NUMBER	DRL DSH	DRL REV	TITLE	CCBD NO.	PCN	PC	EFFECTIVITY
*	MSFC-SPEC-1918	203	-	ABLATION COMPOUND, THERMAL, CORK FILLED	000-00-0000	0000000	M	NONE

CHG NO.	CHG REV	CHG NOTICE	RESPONSIBLE ENGINEER	RESPONSIBLE ORGANIZATION	ACTION DATE	DESCRIPTION
2	B	SCN002	DENNIS GRIFFIN	MP41	05/26/00	SCN002 - REVISION B TO SPECIFICATION. REV.B RELEASE DATE 07/31/92.
3	B	SCN003	DENNIS GRIFFIN	MP41	05/26/00	RELEASES CHANGE PAGE AS AUTHORIZED BY SCN003.
4	B	SCN004	DENNIS GRIFFIN	MP41	05/26/00	RELEASES CHANGES PAGES AUTHORIZED BY ECR MP41-2184, CCBD SB3-01-5333, SB3-01-5333A & SB3-01-5476.
* 5	B	SCN000	EUGENA GOGGANS	EO03	02/22/07	DOCUMENT RELEASED THRU PDS. NO LONGER TRACKED IN ICMS.

CHECKER

N/A
02/15/07

(FINAL)

PACKAGE NO: 10443R

PROGRAM/PROJECT: MULTI LAST UPDATED: 02/22/07

NOMENCLATURE: MSFC-STD- GOING TO NONE EFFECTIVITY

ECR NO:	PCN:	CCBD NO:	DATE PREPARED:
E003-0000	0000000	000-00-0000 SB3-00-0000	02/22/07

DWG SIZE	DRAWING NUMBER	DWG REV	EPL/DRL/DDS NUMBER	DWG REV	EPL DSH	EPL REV	EO DASH NUMBER	EO REV	PART NUMBER
			MSFC-HDBK-1453		202	-			
			MSFC-HDBK-1674		202	-			
			MSFC-HDBK-2221		203	-			
			MSFC-HDBK-505		202	-			
			MSFC-HDBK-670		202	-			
			MSFC-MNL-1951		209	-			
			MSFC-PROC-1301		202	-			
			MSFC-PROC-1721		202	-			
			MSFC-PROC-1831		202	-			
			MSFC-PROC-1832		202	-			
			MSFC-PROC-404		202	-			
			MSFC-PROC-547		202	-			
			MSFC-QPL-1918		204	-			
			MSFC-RQMT-1282		202	-			
			MSFC-SPEC-1198		202	-			
			MSFC-SPEC-1238		202	-			
			MSFC-SPEC-1443		202	-			
			MSFC-SPEC-164		202	-			
			MSFC-SPEC-1870		202	-			
			MSFC-SPEC-1918		203	-			
			MSFC-SPEC-1919		206	-			
			MSFC-SPEC-2083		202	-			
			MSFC-SPEC-2223		202	-			
			MSFC-SPEC-2489		206	-			
			MSFC-SPEC-2490		205	-			
			MSFC-SPEC-2491		203	-			
			MSFC-SPEC-2492		203	-			
			MSFC-SPEC-2497		211	-			
			MSFC-SPEC-250		202	-			
			MSFC-SPEC-445		202	-			
			MSFC-SPEC-504		202	-			
			MSFC-SPEC-521		202	-			
			MSFC-SPEC-548		202	-			
			MSFC-SPEC-560		202	-			
			MSFC-SPEC-626		202	-			
			MSFC-SPEC-684		202	-			
			MSFC-SPEC-708		202	-			
			MSFC-SPEC-766		202	-			
			MSFC-STD-1249		202	-			
			MSFC-STD-1800		202	-			
			MSFC-STD-246		202	-			
			MSFC-STD-2594		203	-			

PACKAGE NO: 10443R

DWG SIZE	DRAWING NUMBER	DWG REV	EPL/DRL/DDS NUMBER	DWG REV	EPL DSH	EPL REV	EO DASH NUMBER	EO REV	PART NUMBER
			MSFC-STD-2903		202	-			
			MSFC-STD-2904		202	-			
			MSFC-STD-2905		202	-			
			MSFC-STD-2906		202	-			
			MSFC-STD-2907		202	-			
			MSFC-STD-366		202	-			
			MSFC-STD-383		202	-			
			MSFC-STD-486		202	-			
			MSFC-STD-506		203	-			
			MSFC-STD-531		202	-			
			MSFC-STD-557		202	-			
			MSFC-STD-561		203	-			
			MSFC-STD-781		202	-			

SUBMITTED BY ENGINEERING AREA:	BASIC	CHANGE	PARTIAL	COMPLETE	CLOSES ACTION
E003		X		X	E003

PREPARED BY:
EUGENA GOGGANS
12/19/06

SUBMITTED BY:

CONCURRENCE:

TRANSMITTAL DATES
TO RELEASE DESK 02/22/07 10:00
TO MSFC DOC REP 02/22/07 00:00

REMARKS:

MSFC DOCUMENTATION REPOSITORY - DOCUMENT INPUT RECORD

I. GENERAL INFORMATION

1. APPROVED PROJECT:	2. DOCUMENT/ DRAWING NUMBER:	3. CONTROL NUMBER:	4. RELEASE DATE:	5. SUBMITTAL DATE:
	MSFC-SPEC-1918 B (3)		08/05/1993	10/18/2002

6. DOCUMENT/DRAWING TITLE:	7. REPORT TYPE:
Ablative Compound, Thermal	

8. CONTRACT NUMBER / PERFORMING ACTIVITY:	9. DRD NUMBER:	10. DPD / DRL / IDRD NUMBER:

11. DISPOSITION AUTHORITY (Check One):	12. SUBMITTAL AUTHORITY:	13. RELEASING AUTHORITY:
☒ Official Record - NRRS 8/12/A M1. ☒ Reference Copy - NRRS 8/5/A/3 (destroy when no longer needed)		Gail H. Gordon

14. SPECIAL INSTRUCTIONS:

15. CONTRACTOR/SUBMITTING ORGANIZATION, ADDRESS AND PHONE NUMBER:	16. ORIGINATING NASA CENTER:
Nonmetallic Materials and Processes Group Materials, Processes, and Manufacturing Department	Marshall Space Flight Center
	17. OFFICE OF PRIMARY RESPONSIBILITY: ED34, Nonmetallic Materials and Processes Group

18. PROGRAMMATIC CODE (5 DIGITS):	19. NUMBER OF PAGES:

II. ENGINEERING DRAWINGS

20. REVISION:	21. ENGINEERING ORDER:	22. PARTS LIST:	23. CCBD:

III. REPORTS, SPECIFICATIONS, ETC.

24. REVISION:	25. CHANGE:	26. VOLUME:	27. BOOK:	28. PART:	29. SECTION:
B	3				

30. ISSUE:	31. ANNEX:	32. SCN:	33. DCN:	34. AMENDMENT:

35. APPENDIX:	36. ADDENDUM:	37. CCBD:	38. CODE ID:	39. IRN:

IV. EXPORT AND DISTRIBUTION RESTRICTIONS

- ☐ Privacy Act (see MWI 1382.1)
- ☐ Proprietary (see MPD 2210.1)
- ☐ Patent (see MPG 2220.1)
- ☐ ITAR (see MPG 2220.1)
- ☐ EAR (see MPG 2220.1)
- ☐ Other ACI (see NPG 1620.1 and MPG 1600.1) _____
- ☒ No statutory or institutional restrictions applicable -- material may be electronically distributed to user in the NASA domain

V. ORIGINATING ORGANIZATION APPROVAL

40. ORG. CODE:	41. PHONE NUMBER:	42. NAME:	43. SIGNATURE/DATE:
ED34	(256) 544-2726	Gail H. Gordon	Gail H. Gordon 10/30/02

VI. TO BE COMPLETED BY MSFC DOCUMENTATION REPOSITORY

44. RECEIVED BY:	45. DATE RECEIVED:	46. WORK ORDER:
Tammy Wise	10-15-03	