

ADVANCED MATERIALS AND PROCESS ENGINEERING LABORATORY

SUPPLIER OF SPACECRAFT THERMAL CONTROL PRODUCTS AND SERVICES

PRODUCT AND SERVICES PRICE LIST

	Unit Price *
White Thermal Control Coatings-Inorganic	
Z-93P Thermal Control Coating Kit <i>Two Parts: Includes HT grade ZnO pigment, potassium silicate binder solution</i>	\$390/kit
YB-71/YP-71P Thermal Control Coating Kit <i>Two Parts: Includes ZOT pigment, potassium silicate binder solution</i>	\$1370/kit
Z-93C55 Conductive Thermal Control Coating Kit <i>Two Parts: Includes Flash calcined ZnO, doped hybrid silicate binder solution</i>	\$1140/kit
Z-93SC55 Conductive Thermal Control Coating Kit <i>Two Parts: Includes conductive grade pigment, doped hybrid silicate binder solution</i>	\$1140/kit
White Thermal Control Coatings-Organic (Silicone)	
SI3GP:6N/L0-I Flexible Thermal Control Coating Kit** <i>Three parts: Includes catalyst, thinner</i>	\$900/kit
SI3GP:6N/L0-II Flexible Thermal Control Coating Kit <i>Three parts: Includes catalyst, thinner</i>	\$990/kit
SI3GP:6N/L0-HP Flexible Thermal Control Coating Kit <i>Three parts: Includes catalyst, thinner</i>	\$1500/kit
DSI3N:6N/L0-HP Flexible Conductive Thermal Control Coating Kit <i>Three parts: Includes catalyst, thinner</i>	\$1500/kit
Transparent Thermal Control Coating:	
6N/LO Space Stable Silicone Coating Kit <i>Three Parts: Includes catalyst, thinner</i>	\$1020/kit
Black Optical Thermal Control Coatings-Inorganic	
MH21-IP Thermal Control Coating Kit <i>Two parts: Includes carbon-infused silica pigment and silicate binder</i>	\$1590/kit
DBG-IP Electrically Conductive Thermal Control Kit , <i>Two Parts: Includes Doped Carbon Infused Silica and Silicate Binder</i>	\$1440/kit
MH55ICP Electrically Conductive Thermal Control Coating Kit <i>Two Parts: Includes carbon-infused silica pigment and silicate binder</i>	\$1620/kit

*Prices quoted are F.O.B. Chicago, IL, in U.S. dollars and do not include the cost of testing, quality assurance, or conformance reporting services.

NOTE: All products are "Atomic Oxygen" (AO) resistant and low-outgassing.

**A 3-part kit, for our silicones or organic paint, is a pint of paint, a pint of thinner and 8 cc of catalyst. The actual weights vary with PBR and densities. The ceramic or inorganic paints consist of 300g of pigment and ~ 300 to 400 mls of binder solution.

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PRODUCT AND SERVICES PRICE LIST (Continued)

Black Optical Thermal Control Coatings-Organic (Silicone)	
MH21:6N/LO Flexible Thermal Control Coating Kit <i>MAPTIS: Class A-89898t Three Parts: Includes catalyst & thinner</i>	\$1560/kit
MH21:6NC/LO Flexible Conductive Thermal Control Coating Kit <i>Three Parts: Includes catalyst, thinner</i>	\$1680/kit
MH41:6NB/LO Flexible Conductive Thermal Control Coating Kit <i>Three Parts: Includes catalyst & thinner</i>	\$1620/kit
D21:6N/LO Flexible Thermal Coating Kit <i>Three Parts: Includes catalyst and thinner</i>	\$1120/kit
D21:6NC/LO Flexible Conductive Thermal Coating Kit <i>Three Parts: Includes catalyst & thinner</i>	\$1320/kit
DBG:6N/LO Flexible Conductive Thermal Control Kit <i>Three Parts: Includes Doped Carbon Infused Silica pigmontee paint with catalyst, & thinner</i>	\$2020/kit
MH2200 One Part Optical Flat Black Absorber Coating <i>(Equivalent to 3M's ECP-2200)</i>	\$420/qt. \$825/gal.
MH200 Flexible Epoxy Based Solar Absorber Coating <i>Two Parts: includes thinner</i>	\$1,200/kit
Paint-Related Products	
Catalyst Solution	8 cc. vial \$210/ea.
SS-4044: Primer Solution	2 oz. \$105/ea. 1 pt. \$300/ea.
AI100: Primer Solution	2 oz. \$105/ea. 1 pt. \$300/ea.
MHP-10: Primer Solution	1 pt. \$390/ea. 1qt. \$600/ea.
X-99: Thinner	1 pt. \$330/ea.
Test reports (to either customer's or Alion's specifications)	\$700/ea.
Dry Ice (paints that require storage below 0 degrees F)	\$50/Box
Expedite Fee will be applied to orders required before standard lead time of product or service	

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NOTE: All products are "Atomic Oxygen" (AO) resistant and low-outgassing.

OTHER SPECIALIZED THERMAL CONTROL COATING SERVICES

CERTIFICATION AND QUALITY ASSURANCE SERVICES. Alion is committed to quality assurance and has the experience to assist our customers in meeting their quality assurance needs. Our quality system, certified by Headquarters, U.S. Army Materiel Command, meets the requirements of ISO-9001:2015. For all products purchased, Alion will provide a Certificate of Conformance in the form of a letter report indicating the required traceability. Should additional quality assurance documentation be required, Alion, upon request, will provide a price quotation for the development of a Quality Assurance Program Plan (QAPP) to suit individual customer needs.

CERTIFICATION TESTING

- **Services** - Testing solar absorptance, total normal emittance, adhesion, thermal shock, and outgassing properties. Cost dependent on material specifications and required testing. Please call for price quote.
- **Quality Control/Quality Assurance** - \$80.00/hour
- **Traceability-Conformance Letter Report Certification** No Cost
- **Primer Solution Certification** (i) % solids only (ii) % solids and mechanical bond strength data. Cost dependent on material specifications and required testing. Please call for price quote.

COATING APPLICATION SERVICES. Alion offers thermal control coating application services for flight hardware components in accordance with applicable federal standards. These services offer an economical approach for those customers who do not have the facilities or capability to apply thermal control coatings. Our Advanced Materials & Coatings Laboratory's years of experience and extensive laboratory facilities makes available to our customers coating application services for hardware components ranging from electronic housings to antennas of various configurations.

The Laboratory also contains high bay areas and special fixtures for use on unique spacecraft items.

OTHER SERVICES.

- Product Testing
- Materials Research and Development
- Application and Formulation Solutions
- Records or Hardware Inspection Services
- Specification Review
- Consulting Services
- Expert Witnessing
- Development and Production of Special or Experimental Formulations

For further technical information on the above services, please contact **Ms. Kaliah Jackson, (773) 836-1524 or Direct Line: (773) 230-2721 or Fax No. (312) 567-4286.**

To obtain a written price quotation for these specialized thermal control-coating services, please contact **Ms. Kate Holbert, Principal Contracts Administrator, (937) 490-2665 or Ms. Kaliah Jackson.**

TERMS AND CONDITIONS OF SALE

ORDERING. Before placing an order for products, Buyers are encouraged to contact our Advanced Materials and Process Engineering Laboratory (AMPEL) to discuss technical needs to ensure that the product ordered satisfies technical requirements. Orders may be placed by purchase order submitted via, facsimile or mail, subject to the terms and conditions contained herein.

To place an order or obtain a price quotation, please contact:

Alion Science and Technology Corporation
Ms. Kaliah Jackson
(773) 836-1524
Direct Line: (773) 230-2721
1900 North Austin Avenue
Chicago IL 60639

E-mail address: kjackson@alionscience.com

OR

Ms. Kate Holbert
Principal Contract Administrator
4021 Executive Dr.
Dayton, OH 45430
(937) 490 2665

E-mail address: kate.holbert@alionscience.com

Seller will forward an acknowledgement of acceptance of the purchase order to the Buyer with any additional comments, including, shipping charges, as appropriate.

TERMS AND CONDITIONS. All sales are subject to and expressly conditioned upon the customer's (hereinafter the "Buyer") acceptance of the terms and conditions contained herein. No variation of these terms and conditions will be binding upon Alion Science and Technology Corporation (hereinafter the "Seller") unless agreed to in writing and signed by an authorized representative of Seller.

EXPORT CONTROL. The products, services, technical data and/or technologies provided or disclosed in performance of this Contract may be subject to required and continuing U.S. Government approvals, clearances, regulations, and export/import and re-export requirements, including the U.S. Department of State International Traffic in Arms Regulations (Title 22, CFR Parts 120-130), the U.S. Department of Commerce Export Administration Regulations (Title 15, CFR 730-774), and any other U.S. Government regulation applicable to the export/import, re-export, or disclosure of controlled technical data (or the products thereof) to Foreign Nationals whether within, or outside, the U.S., including those employed by, or otherwise associated with, the Parties. The Parties acknowledge and agree to fully comply with all such U.S. regulations regarding export/import, re-export, or disclosure of controlled technical data, defense services, products

or technologies contemplated under this contract.

The parties understand and agree that any resultant contract or purchase order for the products or services as set forth in Alion's proposal or quotation may be subject to required and continuing U.S. export approvals, clearances, laws and regulations. In the event any required approval(s), clearance(s), and/or export/import license(s) are not obtained and/or are withdrawn, or not extended once issued, the Parties may terminate this Agreement, in whole or in part, immediately, and following such termination, the Parties shall not have any further obligation to each other under this Agreement. Alternatively, the Parties may elect to take appropriate steps to engage only in those activities with each other that completely conform to all applicable approvals, clearances, regulations and export/import licenses.

SHIPPING. For domestic shipments, delivery will be F.O.B. Chicago, IL. For international shipments, delivery will be on an Ex Works Seller's facility basis. Due to the unique composition of these products, Seller will insure that each item is packaged and shipped using the appropriate method and marked for delivery to the destination as provided by the Buyer. The Buyer will be advised, on the acknowledgement copy of the purchase order, the cost of the special packaging and shipping and will be invoiced accordingly.

DELIVERY. Delivery for products on Seller's price list is 8 to 10 weeks after receipt of purchase order. At the Buyer's request, Seller will use its best efforts to meet an earlier delivery request, but in no event will Seller be liable in any way should an expedited delivery date not be met regardless of the cause(s) of such non-delivery.

PAYMENT. Terms of sale are Net 15 days, unless otherwise stated. If Seller, in its sole discretion, determines that the financial condition of the Buyer results in the insecurity of the Seller, Seller may, without notice to Buyer, delay or postpone delivery of the products; and Seller, at its option, is authorized to change the terms of payment in full or in part in advance of shipment of the entire undelivered balance of the order. In the event of default by Buyer in the payment of the purchase price or otherwise, of this or any other order, Seller, at its option, without prejudice to any other of Seller's lawful remedies, may defer delivery, cancel this order, or sell any undelivered products on hand for the account of the Buyer and apply such proceeds as a credit, without set-off or deduction of any kind, against the purchase price, and Buyer agrees to pay the balance due to the Seller on demand. Buyer agrees to pay all costs, including but not limited to, reasonable attorney and accounting fees and other expenses of collection resulting from any default by Buyer of any of the terms hereof.

TAXES AND OTHER CHARGES. Any use tax, sales tax, excise tax, duty, custom, inspection, or testing fee, or any other tax, fee, or charge of any nature whatsoever imposed by any governmental authority, on or measured by the transaction between Seller and Buyer will be paid by the Buyer in addition to the prices quoted or invoiced. In the event Seller is required to pay any such tax, fee, or charge, Buyer will reimburse Seller therefore; or in lieu of

such payment, Buyer will provide Seller, at the time the order is submitted, an exemption certificate or other document acceptable to the authority imposing the tax, fee, or charge.

DAMAGED SHIPMENTS. Immediately upon receipt of goods shipped hereunder, Buyer is responsible for inspecting the shipment and notifying Seller, in writing, of any claims for shortages, or defects, and agrees to hold the goods for Seller's written instructions concerning disposition. If the Buyer fails to so notify Seller within five days after the Buyer has received the goods, such goods will conclusively be deemed to conform to the terms and conditions hereof and have irrevocably been accepted by the Buyer.

PRODUCT CERTIFICATION, LIMITED WARRANTY AND SHELF LIFE. Seller agrees to provide a Certificate of Conformance for the products purchased in the form of a letter report indicating required traceability. Documents certifying compliance with or conformance to individual Buyer's specifications will also be furnished, provided that the Buyer has filed, with the Seller and Seller has accepted, the latest revision of the Buyer's specification. Thermal Control Coatings S13GP:6N/LO-1, MH21:6N/LO, and MH21:6NC/LO are warranted for a period of 6 months after shipment, provided the products are stored at 0° F or lower. The pigment materials for Thermal Control Coatings YB-71/YP-71P, and Z93P have a shelf life of 12 months and the silicate binder has a shelf life of 12 months. Seller warrants that its products conform to the description of such products as described in the Certificate of Conformance. **THIS WARRANTY IS EXCLUSIVE, AND SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.** Seller's warranties made in connection with this sale shall not be effective if Seller has determined, in its sole discretion, that Buyer has misused the products in any manner, has failed to use the products in accordance with industry standards and practices, or has failed to store or use products in accordance with instructions, if any, furnished by Seller. Seller's sole and exclusive liability and Buyer's sole and exclusive remedy with respect to products proved to Seller's satisfaction to be defective or nonconforming should be, in the Seller's sole discretion, the replacement of such defective products without charge or refund to the Buyer of the purchase price. Seller will advise Buyer as to Seller's decision with respect to defective or non-conforming products following the Buyer's return of such defective or non-conforming products to the Seller in accordance with Seller's instructions.

CHANGES. Orders placed with Seller may be changed or amended only by written agreement signed by both Buyer and Seller, and such written Agreement shall set forth the particular changes made and the effect, if any, of such changes on price and delivery. Buyer may not cancel orders placed hereunder unless Seller expressly agrees to such cancellation in writing. In the event Seller agrees to such cancellation, Seller will advise Buyer of the charge associated with such cancellation, and Buyer agrees to pay such charges, including, but not limited to, storage and shipment costs, costs of producing non-standard materials, costs of purchasing non-

returnable materials, cancellation costs imposed on Seller by its suppliers, restocking fees, and any other costs resulting from such cancellation.

PRODUCT RETURNS. No Product(s) sold hereunder shall be returned to Seller without Seller's prior written permission. Written permission will be granted for: (i) Products not supplied in accordance with Subscriber's orders; and, (ii) Products which are defective and/or non-conforming at the time of receipt by the buyer (buyer should notify the seller within five days of receiving the damaged or non-conforming product); and (iii) damaged shipments (see requirements in the "damaged shipments" section of the terms and conditions. Approved returns of non-defective Product(s) shall be subject to a restocking charge equal to 25% of the then current sale price, FOB Seller's warehouse as indicated in the Product return approval, with return freight charges for Buyer's account. Returns will not be accepted for: (i) Products which have been discontinued; (ii) Products which are personalized or customized; (iii) Refrigerated or temperature controlled Products; (iv) Products which are outdated (expired), shelf-worn, used or defaced and, therefore, unsuitable for return to stock and resale as new; and (v) Products that have been shipped outside the United States. For Product(s) that cannot be returned, Seller may, in its discretion, provide Buyer with assistance on regulatory issues, disposal options and cost estimate.

STANDARD OF CARE, LIMITED LIABILITY, AND CLAIM PERIOD FOR SERVICES. Seller shall render services in a manner consistent with that level of care and skill ordinarily exercised by professionals currently practicing under similar conditions in the area where its services are performed. No other warranty, express or implied, is made, and all other such warranties are expressly excluded. Buyer acknowledges that no representation, guarantee, or warranty has been made or given by Seller to Buyer regarding Seller's services or the result of such services except as set forth herein. Buyer's

exclusive remedy against Seller for any wrongful act or omission of Seller shall be an action for breach of this limited warranty and Seller's aggregate liability to Buyer for all breaches of Seller's limited warranty with respect to services performed hereunder shall be limited to the lesser of \$100,000 or the amount paid by Buyer to Seller under each

purchase order. **SELLER SHALL NOT IN ANY EVENT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES OF ANY KIND WHATSOEVER RESULTING FROM ANY USE OR FAILURE OF THE PRODUCTS, EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE, INCLUDING, WITHOUT LIMITATION, LIABILITY FOR LOSS OF USE, LOSS OF WORK IN PROGRESS, DOWN TIME, LOSS OF REVENUE OR PROFITS, FAILURE TO REALIZE SAVINGS, LOSS OF PRODUCTS OF BUYER OR OTHER USE OR ANY LIABILITY OF BUYER TO A THIRD PARTY ON ACCOUNT OF SUCH LOSS, OR FOR ANY LABOR OR ANY OTHER EXPENSE OR DAMAGE OR LOSS OCCASIONED BY SUCH PRODUCT INCLUDING PERSONAL INJURY OR PROPERTY DAMAGE UNLESS**

SUCH PERSONAL INJURY OR PROPERTY DAMAGE IS CAUSED BY SELLER'S GROSS NEGLIGENCE. Buyer understands and agrees that its agreement to so limit Seller's liability **STANDARD OF CARE, LIMITED LIABILITY, AND CLAIM PERIOD FOR SERVICES** was a material inducement to Seller to provide services to Buyer at the rates and/or prices provided in the price quotation and that if Seller's liability were not so limited, then Seller would either not have agreed to perform those services or would have charged substantially higher fees for such services. Any claim made against Seller for breach of its limited warranty for services must be made in writing and received by Seller no later than one year after Seller has completed performance of its services ordered hereunder. If Seller does not receive a claim within the one-year period, then the claim shall be deemed waived regardless of whether Buyer knew of or could have discovered the existence of the claim within that one-year period.

INDEMNIFICATION. The Seller and Buyer (hereinafter collectively the "Parties") each assume full responsibility for their respective employees, agents and property during the performance of services provided under this Agreement. The Parties agree to release, defend and indemnify each other against all claims, causes of action, suits, liabilities and judgments arising from injury or death of such employees or agents, or damage or loss of its own or its agent's property, regardless of the indemnified Party's active, passive, sole or concurrent negligence or fault in any degree under any rule or theory of law, including strict liability. Each Party agrees to assume responsibility for its individual acts of gross negligence or willful misconduct in connection with the performance of services purchased under this Agreement, which acts cause injury or death to any third party or damage or destruction to third party property. Further, each Party expressly reserves the right to proceed against any third party when such actions are appropriate.

PATENT DISCLAIMER. Seller does not warrant that the use or sale of the products delivered hereunder will not infringe the claims of any United States or other patents covering the product itself or the use thereof in combination with other products or in the operation of any process.

ASSIGNMENT. The Buyer may not assign or transfer its duties, interests, or obligations under this Agreement without obtaining the prior written approval of Alion.

Alion reserves the right to assign all of its rights, powers, and privileges under this Agreement for any reason, including without limitation, the right to assign this Agreement, in whole or in part, to any successor by way of merger or consolidation or the acquisition of substantially all of its assets.

FORCE MAJEURE. Seller shall not be liable to the Buyer for any loss, claim or damage as a result of any delay or failure in the performance of any obligation hereunder, directly or indirectly caused by or resulting from: acts of the Government; acts of God; acts of third persons; strikes, embargoes, delays in the mail, transportation and delivery; power failures and shortages; fires; floods; epidemics, and unusually severe weather conditions; or other causes beyond the control of the Seller.

GOVERNING LAW. Each Party agrees to timely notify the other Party of any claim, dispute, or cause of action arising under or related to this Agreement and to negotiate in good faith to resolve any such claim, dispute, or cause of action. To the extent that such negotiations fail, the Parties agree that any lawsuit or cause of action brought by one Party against the other that arises out of or is related to this Agreement shall be filed and litigated only with a court of competent jurisdiction within the Commonwealth of Virginia; and the Parties hereby consent and agree to the personal jurisdiction and venue of any state or federal court of competent jurisdiction located within the Commonwealth of Virginia with respect to any such claim, dispute, or cause of action and waive any defense or objection to the exercise of personal jurisdiction and/or venue by any such court. The Parties to this Agreement also consent and agree that this Agreement and the obligations of the Parties hereunder shall be governed by, interpreted, construed, and enforced in accordance with the laws of the Commonwealth of Virginia, without reference to its principles of conflict of laws.

GOVERNING DOCUMENT. In no event shall the preprinted terms or conditions found on Buyer's purchase order, work order, or authorization to proceed be considered an amendment or modification to the terms and conditions contained herein, even if such documents are signed by representatives of both the Buyer and Seller. Such preprinted terms or conditions shall be considered null and void and of no effect with respect to any transaction made pursuant to these terms and conditions.

ENTIRE AGREEMENT AND SEVERABILITY. The terms and conditions set forth herein represent the entire agreement and understanding between the Buyer and Seller and may only be amended by written modification signed by both Parties. In the event any one or more of the provisions of this Agreement are held to be invalid, illegal, or unenforceable for any reason or in any respect whatsoever, the validity, legality, and enforceability of the remaining provisions will not in any way be affected or impaired thereby.