



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

MAR 31 2009

CERTIFIED MAIL NO. 7001 2510 0006 7303 4528
RETURN RECEIPT REQUESTED

Mr. Michael Manclark
President
Leading Edge Aviation Services, Inc.
19301 Campus Drive, Suite 250
Santa Ana, CA 92707

Re: In the matter of Leading Edge Aviation Services -- U.S. EPA Docket No.
RCRA-09-~~00~~ 2009- 0006

Dear Mr. Manclark:

Enclosed is a copy of the fully executed Consent Agreement and Final Order which contains the terms of the settlement reached with the United States Environmental Protection Agency.

Your payment of the penalty and completion of the Supplemental Environmental Project identified in the Consent Agreement and Final Order will close this case. If you have any questions regarding the rules, regulations and statutes which govern the proceedings terminated by the enclosed Consent Agreement and Final Order, please contact Rebecca Sugerman at (415) 972-3893.

Sincerely,


for Jeff Scott, Director
Waste Management Division

Enclosure



FILED

2009 MAR 31 PM 3:09

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IX

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGIONAL HEARING CLERK

In the matter of)	U.S. EPA Docket No.
)	RCRA-9-2009- 0006
LEADING EDGE AVIATION SERVICES)	
)	CONSENT AGREEMENT AND
EPA ID No. CAR000158964)	FINAL ORDER PURSUANT TO
and CAR000162115)	40 C.F.R. SECTIONS 22.13 AND
<u>Respondent.</u>)	22.18

CONSENT AGREEMENT

A. PRELIMINARY STATEMENT

1. This is a civil administrative enforcement action instituted pursuant to Section 3008(a)(1) of the Resource Conservation and Recovery Act ("RCRA"), as amended, 42 U.S.C. § 6928(a)(1), and the Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties, Issuance of Compliance or Corrective Action Orders, and the Revocation, Termination or Suspension of Permits, 40 Code of Federal Regulations ("C.F.R.") Part 22, as revised by 64 Fed. Reg. 141 (July 23, 1999). Complainant is the United States Environmental Protection Agency, Region IX ("EPA"). Respondent is Leading Edge Aviation Services ("LEAS" or "Respondent").
2. Respondent operates a facility at 13516 Phantom Road & 13010 Aerospace Drive in Victorville, California, 92394 (the "Facility"). The Facility has two EPA Identification Numbers: CAR 000158964 and CAR000162115. LEAS is contracted to paint airplanes for the airline industry. LEAS has been operating in Victorville since January 2005, employs approximately 75 people, and generally operates 24 hours a day, seven days a week.
3. This Consent Agreement and Final Order pursuant to 40 C.F.R. Sections 22.13 and 22.18 ("CA/FO"), simultaneously commences and concludes this proceeding.
4. Respondent neither admits nor denies any allegations of fact or law set forth in Section C of this CA/FO. The parties agree that settlement of the relevant matters without litigation will save time and resources, that it is in the public interest, that it is consistent with the provisions and objectives of RCRA and applicable regulations, and that entry of this CA/FO is the most appropriate means of resolving such matters. EPA alleges that Respondent failed to: (1) make a waste determination, a violation of 22 California Code

of Regulations (“C.C.R.”) § 66262.11 [*see also* 40 C.F.R. § 262.11]; (2) obtain a permit or grant of interim status for storage of hazardous waste, a violation of California Health and Safety Code (“H&SC”) Section 25200 and 22 C.C.R. § 66270.1(c) [*see also* 40 C.F.R. § 270.1(c)]; (3) prepare a manifest for transportation of hazardous waste, a violation of 22 CCR §66262.20 *see also* 40 C.F.R. § 262.20]; (4) close containers of hazardous waste, a violation of 22 C.C.R. § 66265.173 [*see also* 40 C.F.R. § 265.173]; (5) maintain the facility to prevent unplanned release of hazardous waste to the environment, a violation of 22 CCR § 66265.31 [*see also* 40 C.F.R. § 265.31]; (6) maintain adequate aisle space, a violation of 22 C.C.R. § 66265.35 [*see also* 40 C.F.R. § 265.35]; and (7) file a Biennial Report as required by 22 C.C.R. § 66262.41(b) [*see also* 40 C.F.R. § 262.41(a)]. EPA alleges that these are all in violation of Section 3001 et seq. of RCRA, 42 U.S.C. § 6921 et seq., and state regulations adopted pursuant thereto.¹

B. JURISDICTION

- 5. On August 1, 1992, the State of California received authorization to administer the hazardous waste management program in lieu of the federal program pursuant to § 3006 of RCRA, 42 U.S.C. § 6926, and 40 C.F.R. Part 271. The authorized program is established pursuant to the Hazardous Waste Control Law, Chapter 6.5 of Division 20 of the California Health and Safety Code, and the regulations promulgated thereunder at Title 22, Division 4.5 of the California Code of Regulations, 22 C.C.R. §§ 66001 *et seq.* The State of California has been authorized for all the regulations referenced in this CA/FO.
- 6. Respondent is a person as defined in 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].
- 7. Respondent is the operator of a facility as defined in 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].
- 8. Respondent’s hazardous waste manifests indicate it is a generator of hazardous waste as defined in 22 C.C.R. § 66260.10 [40 C.F.R. § 260.10].

¹ All citations to the “C.C.R.” refer to Division 4.5 of Title 22 of the current California Code of Regulations. EPA is enforcing California hazardous waste management program requirements as approved and authorized by the United States on August 1, 1992 (*see* 57 FR 32726, July 23, 1992) and September 26, 2001 (66 FR 49118, September 26, 2001). Corresponding Federal citations are provided in brackets.



9. Respondent is or has been engaged in storage of hazardous waste as defined in 22 C.C.R. § 66260.10 [see also 40 C.F.R. § 260.10].
10. Respondent generates and accumulates, or has generated and accumulated, materials that are wastes as defined in 22 C.C.R. §§ 66260.10 and 66261.2 [see also 40 C.F.R. §§ 260.10 and 261.2].
11. At the Facility, Respondent generates and accumulates, or has generated and accumulated, hazardous waste as defined in California H&SC § 25117, and 22 C.C.R. §§ 66260.10 and 66261.3 [see also RCRA § 1004(5), and 40 C.F.R. §§ 260.10 and 261.3]. These hazardous wastes include, but are not limited to, acetone used to clean paint guns and pots (RCRA waste code D001); paint stripper with paint (D007); post-alodine treatment rinsewaters (D007); sludge from an evaporator (D006 and D007); paint filters (D007); and rags with solvents (F003).
12. On February 15, 2006, EPA conducted a RCRA Compliance Evaluation Inspection ("CEI") at the Facility. Based upon the findings EPA made during the inspection, and additional information obtained subsequent to the inspection, EPA determined that Respondent had violated California Health & Safety Code § 25100 *et seq.* and the regulations adopted pursuant thereto, as approved and authorized by the United States.
13. Section 3006 of RCRA, 42 U.S.C. § 6926 provides, *inter alia*, that authorized state hazardous waste programs are carried out under Subtitle C of RCRA. Therefore, a violation of any requirement of law under an authorized state hazardous waste program is a violation of a requirement of Subtitle C of RCRA.
14. A violation of California's authorized hazardous waste program, found at H&SC § 25100 *et seq.*, constitutes a violation of Subtitle C of RCRA and, therefore, a person who violates California's authorized hazardous waste program is subject to the powers vested in the EPA Administrator by Section 3008 of RCRA, 42 U.S.C. § 6928.
15. Section 3008 of RCRA, 42 U.S.C. § 6928, authorizes the EPA Administrator to issue orders requiring compliance immediately or within a specified time for violation of any requirement of Subtitle C of RCRA, Section 3001 of RCRA *et seq.*, 42 U.S.C. § 6921 *et seq.*
16. The Administrator has delegated the authority under Section 3008 of RCRA to the EPA Regional Administrator for Region 9, who has re-delegated this authority to the Director of the Waste Management Division.



C. ALLEGED VIOLATIONS

COUNT I

Failure to Conduct a Hazardous Waste Determination

17. Paragraphs 1 through 16 above are incorporated herein by this reference as if they were set forth here in their entirety.
18. Pursuant to 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11], a person who generates a solid waste, as defined in 22 C.C.R. § 66261.2 [*see also* 40 C.F.R. § 261.2], must determine if that waste is a hazardous waste.
19. Respondent generates several waste streams, including paint filters, paint stripper with paint chip waste, and evaporator sludge. At the time of the CEI, Respondent was managing these wastes as non-hazardous or as California only hazardous waste.
20. After the inspection, Respondent analyzed the waste streams and found that all exhibited the RCRA characteristic of toxicity based on chromium concentrations, RCRA waste code D007.
21. Therefore EPA alleges that Respondent has violated 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11].

COUNT II

Failure to Obtain a Permit for Storage of Hazardous Waste

22. Paragraphs 1 through 21 above are incorporated herein by this reference as if they were set forth here in their entirety.
23. 22 C.C.R. § 66270.1(c) requires that each person owning or operating a facility where hazardous waste is transferred, treated, stored, or disposed must have a permit. At the time of the inspection, Respondent did not have a permit or grant of interim status to store hazardous waste under 22 C.C.R. § 66270.1(c) [*see also* 40 C.F.R. § 270.1(c)].
24. 22 C.C.R. § 66262.34(a) provides that a large quantity generator may accumulate hazardous waste on-site for 90 days or less without a permit or grant of interim status provided the generator meets certain conditions. 22 C.C.R. § 66262.34(f) requires that generators label containers with the words "hazardous waste" and with the date accumulation of the waste begins, and the label must be visible for inspection [*see also* 40 C.F.R. § 262.34(a)]. Generators who fail to label containers of hazardous waste accordingly fail to meet the requirements of 22 C.C.R. § 66262.34, and are subject to the permitting requirements of 22 C.C.R. § 66270.1 [*see also* 40 C.F.R. § 270.1].
25. On February 15, 2006, the EPA Inspector observed that several containers and tanks were unlabeled or were not labeled completely, including a portable tank of rinsewaters,



a 10,000 tank of rinsewaters, three 55-gallon containers of acetone waste, and a 55-gallon drum of rags.

26. During the CEI the EPA inspector observed that several drums of RCRA hazardous waste were stored for more than 90 days.
27. 40 C.F.R. § 262.34(a)(2) requires that labels on containers of hazardous waste must be clearly marked and visible for inspection on each container.
28. During the CEI the EPA inspector observed that the drums in the hazardous waste storage area were stored so close together that accumulation start dates were not visible on most.
29. During the CEI the EPA inspector observed that all containers of paint stripper and paint chip waste, and evaporator sludge, were mislabeled as non-RCRA, California only waste.
30. Respondent's failure to meet the requirements set forth or referenced by 22 C.C.R. § 66262.34 subject it to the permit requirements of 22 C.C.R. § 66270.1 [*see also* 40 C.F.R. §§ 262.34 and 270.1]. Therefore EPA alleges that Respondent stored hazardous waste without a permit, a violation of 22 C.C.R. § 66270.1(c) [*see also* 40 C.F.R. § 270.1(c)].

COUNT III

Transporting Hazardous Waste without Preparing a Manifest

31. Paragraphs 1 through 30 above are incorporated herein by this reference as if they were set forth here in their entirety.
32. 22 C.C.R. § 66262.20 [*see also* 40 C.F.R. § 262.20] requires that a generator who transports or offers for transport a hazardous waste for offsite treatment, storage, or disposal must prepare a hazardous waste manifest.
33. During the CEI, the EPA inspector observed that LEAS had disposed of paint filters in the solid waste garbage dumpsters. The paint waste exhibited the RCRA characteristic of toxicity based on chromium concentrations, RCRA waste code D007.
34. Hazardous wastes were shipped offsite without preparation of a hazardous waste manifest. Therefore EPA alleges that Respondent has violated 22 C.C.R. § 66262.20 [*see also* 40 C.F.R. § 262.20].

COUNT IV

Failure to Close Containers of Hazardous Waste

35. Paragraphs 1 through 34 above are incorporated herein by this reference as if they were set forth here in their entirety.



36. 22 C.C.R. § 66262.34(a) provides that a generator may accumulate hazardous waste on-site for 90 days or less without a permit or grant of interim status provided the generator meets certain requirements, including 22 C.C.R. § 66265.173(a), which requires that generators keep containers holding hazardous waste closed during transfer and storage, except when it is necessary to add or remove waste [*see also* 40 C.F.R. § 265.173(a)].
37. On February 15, 2006 the EPA Inspector observed one 300-gallon tote of paint stripper and paint waste that was open when waste was not being added or removed.
38. Therefore EPA alleges that Respondent has violated 22 C.C.R. § 66265.173 [*see also* 40 C.F.R. § 265.173].

COUNT V


Failure to Maintain Facility to Prevent Releases

39. Paragraphs 1 through 38 above are incorporated herein by this reference as if they were set forth here in their entirety.
40. 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 265.31] requires that facilities be maintained and operated to minimize the possibility of any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.
41. During the CEI, the EPA inspector observed a drum of acetone product placed on secondary containment in such a way that spills were not contained, but leaked onto the floor.
42. In addition, on May 8, 2007, hazardous wastewater from a sump in hanger 747 overflowed to a dirt area outside the building. LEAS removed an eight foot by eight foot, 12 inch deep area of dirt to clean up the area.
43. Therefore EPA alleges that Respondent has violated 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 265.31].

COUNT VI

Failure to Maintain Aisle Space

44. Paragraphs 1 through 43 above are incorporated herein by this reference as if they were set forth here in their entirety.
45. 22 C.C.R. § 66265.35 [*see also* 40 C.F.R. § 265.35] requires that the owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in any area of facility operation in an emergency, unless aisle space is not needed for any of these purposes.

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46. During the CEI, the EPA Inspector noted that approximately 100 drums in the hazardous waste area did not have adequate aisle space.
47. Therefore EPA alleges that Respondent violated 22 C.C.R. § 66265.35 [*see also* 40 C.F.R. § 265.35].

COUNT VII

Failure to File a Biennial Report

48. Paragraphs 1 through 47 above are incorporated herein by this reference as if they were set forth here in their entirety.
49. 22 C.C.R. § 66262.41(b) [*see also* 40 C.F.R. § 262.41(a)] requires that generators of 1,000 kilograms or more of RCRA hazardous waste in any single month must file a Biennial Report describing hazardous waste generated in each odd-numbered year. The reports are due by March 1 of each even-numbered year for waste generated the previous year.
50. On February 15, 2006, EPA Inspectors noted that Respondent had not filed a Biennial Report for 2005.
51. Therefore, EPA alleges that Respondent has violated 22 C.C.R. § 66262.41(b) [*see also* 40 C.F.R. § 262.41(a)].


D. CIVIL PENALTY

52. Section 3008(g) of RCRA, 42 U.S.C. § 6928(g), as adjusted by the Debt Collection Improvement Act of 1996, *see* 61 Fed. Reg. 69360 (Dec. 31, 1996), and the Civil Monetary Penalty Inflation Adjustment Rule, *see* 69 Fed. Reg. 7121 (Feb. 13, 2004), authorizes a civil penalty of up to TWENTY-SEVEN THOUSAND, FIVE HUNDRED DOLLARS (\$27,500) per day for violations of Subtitle C of RCRA, 42 U.S.C. § 6921 *et seq.*, occurring between January 31, 1997 and March 15, 2004. The Civil Monetary Penalty Inflation Adjustment Rule issued in February 2004 authorizes a civil penalty of up to THIRTY-TWO THOUSAND FIVE HUNDRED DOLLARS (\$32,500) for violations that occur after March 15, 2004. 69 Fed. Reg. 7121 (Feb. 13, 2004). Based upon the facts alleged herein and upon those factors which the Complainant must consider pursuant to Section 3008(a)(3) of RCRA, 42 U.S.C. § 6928(a)(3), and the June 2003 RCRA Civil Penalty Policy, and the EPA Supplemental Environmental Project Policy ("SEP Policy"), the Complainant proposes that the Respondent be assessed and Respondent agrees to pay, SIXTY FIVE THOUSAND DOLLARS (\$65,000.00) as the civil penalty to resolve the violations alleged herein.

E. SUPPLEMENTAL ENVIRONMENTAL PROJECT



53. As part of the settlement of this enforcement action, Respondent shall perform a Supplemental Environmental Project (SEP). Performance of the tasks set forth in this Section shall constitute satisfactory performance of the SEP.
54. Respondent shall implement a pollution prevention SEP. The SEP will eliminate the use of hexavalent chrome and hydrofluoric acids in the conversion coating process at the Facility. The SEP requires replacing a hexavalent chrome alodine rinse with a non-chromate rinse, PreKote, as described in Attachment 1.
55. Respondent will implement this SEP for at least two years from the Effective date of this CA/FO.
56. Respondent shall expend at least Six Hundred Thousand Dollars (\$600,000.00) on the SEP.
57. Respondent shall complete all SEP activities within thirty (30) months of the Effective Date of this CA/FO.
58. Within thirty (36) months after the Effective Date of this CA/FO, Respondent shall certify to EPA in writing that it has completed all SEP activities. At the same time, Respondent shall provide EPA an accounting showing the amount Respondent expended for the implementation of the SEP, and submit to EPA substantiating documentation, including but not limited to invoices, purchase orders, checks or receipts. The signatory for Respondent shall certify under penalty of law that this certification is based upon true, accurate and complete information, which the signatory can verify personally or regarding which the signatory has inquired of the person or persons directly responsible for gathering the information.
59. In the event that Respondent publicizes the SEPs, Respondent shall state in a prominent manner that the project is part of a settlement of an enforcement action by EPA.
60. In light of Defendant's willingness to perform the SEP described herein, EPA reduced by \$50,000 the amount that it otherwise would have been willing to accept in civil penalty. Respondent shall neither capitalize into inventory or basis nor deduct \$50,000 of the costs or expenditures it incurs in performing this SEP.
61. In signing this CA/FO, Respondent hereby certifies that it is not required by any federal, state or local law or regulation to perform or develop the SEPs described above; nor is Respondent required by agreement, grant or as injunctive relief in this or any other case (other than in this CA/FO) to perform or develop this SEP. Respondent further certifies that it has not received, and is not presently negotiating to receive, credit in any other enforcement action for this SEP; nor will Respondent realize any profit, credit or tax deduction attributable to or associated with this SEP.
62. In signing this CA/FO, Respondent hereby certifies that it is performing this pollution



prevention SEP in settlement of this enforcement action, and that the chemical replacement was not planned for this Facility prior to the date LEAS received EPA's Notice of Violation dated June 5, 2006.

F. ADMISSIONS AND WAIVERS OF RIGHTS


63. For the purposes of this proceeding, Respondent admits to the jurisdictional allegations set forth in Section B of this CA/FO. Respondent consents to and agrees not to contest EPA's jurisdiction and authority to enter into and issue this CA/FO and to enforce its terms. Further, Respondent will not contest EPA's jurisdiction and authority to compel compliance with this CA/FO in any enforcement proceedings, either administrative or judicial, or to impose sanctions for violations of this CA/FO.
64. Respondent neither admits nor denies any allegations of fact or law set forth in Section C of this CA/FO. Respondent hereby waives any rights Respondent may have to contest the allegations set forth in this CA/FO, waives any rights Respondent may have to a hearing on any issue relating to the factual allegations or legal conclusions set forth in this CA/FO, including without limitation a hearing pursuant to Section 3008(b) of RCRA, 42 U.S.C. § 6928(b), and hereby consents to the issuance of this CA/FO without adjudication. In addition, Respondent hereby waives any rights Respondent may have to appeal the Final Order attached to this Consent Agreement and made part of this CA/FO.

G. PARTIES BOUND

65. This CA/FO shall apply to and be binding upon Respondent and its agents, successors and assigns, until such time as the civil penalty required under Section D has been paid and either (1) the SEP required under Section E has been fully completed, or (2) in the event of failure to complete the SEP in full, satisfactory good-faith compliance pursuant to Paragraph 73 has been made, or stipulated penalties in accordance with Section I of this CA/FO have been paid. At such time as those matters are concluded, this CA/FO shall terminate and constitute full settlement of the violations alleged herein.
66. No change in ownership or corporate, partnership or legal status relating to the Facility will in any way alter Respondent's obligations and responsibilities under this CA/FO.
67. The undersigned representative of Respondent hereby certifies that he or she is fully authorized by Respondent to enter into this CA/FO, to execute and to legally bind Respondent to it.

H. PAYMENT OF CIVIL PENALTY

68. Respondent consents to the assessment of and agrees to pay a civil penalty of SIXTY FIVE THOUSAND DOLLARS (\$65,000.00), and to complete the SEP described in Section E, in full settlement of the federal civil penalty claims set forth in this CA/FO.

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69. Respondent shall submit payment of the SIXTY FIVE THOUSAND DOLLARS (\$65,000.00), within thirty (30) calendar days of the Effective Date of this CA/FO. The Effective Date of this CA/FO is the date the Final Order, signed by the Regional Judicial Officer, is filed with the Regional Hearing Clerk. All payments shall indicate the name of the Facility, EPA identification number of the Facility, the Respondent's name and address, and the EPA docket number of this action. Payment shall be made by certified or cashier's check payable to "Treasurer of the United States" and sent to:

US Environmental Protection Agency
Fines and Penalties
Cincinnati Finance Center
PO Box 979077
St. Louis, MO 63197-9000.

At the time payment is made, a copy of the check shall be sent to:

Danielle Carr
Regional Hearing Clerk (RC-1)
U.S. Environmental Protection Agency - Region 9
75 Hawthorne Street
San Francisco, CA 94105,

and

Robin Holloway(WST-3)
Waste Management Division
U.S. Environmental Protection Agency - Region 9
75 Hawthorne Street
San Francisco, CA 94105.

Alternatively, payment may be made by wire transfer, ACH, or online payment, pursuant to instructions at http://www.epa.gov/cfo/finservices/make_a_payment_cin.htm.

70. In accordance with the Debt Collection Act of 1982 and U.S. Treasury directive (TFRM 6-8000), each payment must be received by the due date set forth in this CA/FO to avoid additional charges. If payment is not received by the due date, interest will accrue from the Effective Date of this CA/FO at the current rate published by the United States Treasury as described at 40 C.F.R. § 13.11. A late penalty charge of \$15.00 will be imposed after thirty (30) calendar days with an additional \$15.00 charge for each subsequent 30-day period. A 6% per annum penalty will further apply on any principal amount not paid within ninety (90) calendar days of its due date. Respondent further will be liable for stipulated penalties as set forth below for any payment not received by its due date.

I. DELAY IN PERFORMANCE/STIPULATED PENALTIES

71. In addition to the interest and per annum penalties described above, in the event that



Respondent fails to pay the full amount of the penalty within the time specified in Section H, Respondent agrees to pay Complainant a stipulated penalty in the amount of up to ONE HUNDRED DOLLARS (\$100.00) for each day the default continues.

72. Except as provided in Paragraph 73 immediately below, in the event that Respondent fails to complete the SEP as required by this CA/FO, including all attachments, Respondent shall pay a stipulated penalty of up to THIRTY SEVEN THOUSAND FIVE HUNDRED DOLLARS.
73. If Respondent fails to complete the SEP as required by the CA/FO, including all attachments, but Respondent (a) has made good faith and timely efforts to complete the SEP; and (b) certifies, with supporting documentation, that at least 90% of the amount of money which was required by this CA/FO to be spent was expended on the SEP, no stipulated penalty will apply.
74. If Respondent completes the SEP in accordance with the requirements of this CA/FO, including all attachments, but Respondent spent less than 90 percent of the amount to money required by this CA/FO to be spent for the SEP, Respondent shall pay a stipulated penalty of TWELVE THOUSAND FIVE HUNDRED DOLLARS (\$12,500.00)
75. If Respondent satisfactorily completes the SEP in accordance with the requirements of this CA/FO, including all attachments, and spends at least 90% of the amount of money required by this CA/FO to be spent for the SEP, no stipulated penalty will apply.
76. The determination of whether Respondent has satisfactorily completed the SEP set forth in Section D of this CA/FO and the determination of whether Respondent has made a good faith, timely effort to implement the SEP for purposes of this Section, are within the sole discretion of the Director, Waste Management Division, EPA Region IX, subject to the terms of this CA/FO. The decision of the Division Director, Waste Management Division, EPA Region IX is not reviewable in any forum.
77. All stipulated penalties shall begin to accrue on the date that performance is due or a violation occurs. Stipulated penalties under Paragraph 71 shall continue to accrue through the final day of correction of the noncompliance. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations.
78. All stipulated penalties owed to EPA under this Section shall be due within thirty (30) days of receipt of a notification of noncompliance. Such notification shall describe the noncompliance and shall indicate the amount of penalties due. Interest at the current rate published by the United States Treasury, as described at 40 CFR § 13.11, shall begin to accrue on the unpaid balance at the end of the thirty-day period.
79. Payment shall be made as described above in Paragraph 69. At the time payment is made, a copy of the check or payment documentation shall be sent to Danielle Carr and Robin Holloway as described above in Paragraph 69.



- 80. All payments shall indicate the name of the Facility, EPA identification number of the Facility, the Respondent's name and address, and the EPA docket number of this action.
- 81. The payment of stipulated penalties under Paragraph 71 shall not alter in any way Respondent's obligation to complete the performance required hereunder.
- 82. The stipulated penalties set forth in this Section do not preclude EPA from pursuing any other remedies or sanctions which may be available to EPA by reason of Respondent's failure to comply with any of the requirements of this CA/FO.

J. RESERVATION OF RIGHTS AND COVENANT NOT TO SUE

- 83. This CA/FO resolves Respondent's RCRA civil penalty liability for the violations alleged herein. Upon payment of the civil penalty set forth in Paragraph 69 and completion of the SEP described in Paragraph E, EPA hereby covenants not to sue Respondent for civil penalties for the RCRA civil violations alleged in this CA/FO.
- 84. Except as set forth in the preceding paragraph, EPA hereby reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, including the right to require that Respondent perform tasks in addition to those required by this CA/FO. EPA further reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, which may pertain to Respondent's failure to comply with any of the requirements of this CA/FO, including without limitation, the assessment of penalties under Section 3008(c) of RCRA, 42 U.S.C. § 6928(c). Except as set out in Paragraph 81 above, this CA/FO shall not be construed as a covenant not to sue, release, waive or limit any rights, remedies, powers or authorities, civil or criminal, which EPA has under RCRA, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), or any other statutory, regulatory or common law enforcement authority of the United States.
- 85. Compliance by Respondent with the terms of this CA/FO shall not relieve Respondent of its obligations to comply with RCRA or any other applicable local, State or federal laws and regulations.
- 86. The entry of this CA/FO and Respondent's consent to comply shall not limit or otherwise preclude EPA from taking additional enforcement actions should EPA determine that such actions are warranted except as they relate to Respondent's liability for federal civil penalties for the specific alleged violations and facts as set forth in Section C of this CA/FO.
- 87. This CA/FO is not intended to be nor shall it be construed as a permit. This CA/FO does not relieve Respondent of any obligation to obtain and comply with any local, State or federal permits.

K. OTHER CLAIMS

88. Nothing in this CA/FO shall constitute or be construed as a release from any other claim, cause of action or demand in law or equity by or against any person, firm, partnership, entity or corporation for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Facility.

L. MISCELLANEOUS

89. This CA/FO may be amended or modified only by written agreement executed by both EPA and Respondent.
90. The headings in this CA/FO are for convenience of reference only and shall not affect interpretation of this CA/FO.
91. The Effective Date of this CA/FO is the date the Final Order, signed by the Regional Judicial Officer, is filed by the Regional Hearing Clerk.

IT IS SO AGREED.

3.20.09

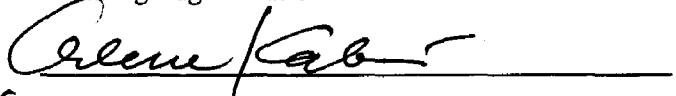
Date

3-30-09

Date



W. Michael Manclark
Leading Edge Aviation Services



for Jeff Scott, Director
Waste Management Division
U.S. Environmental Protection Agency, Region IX

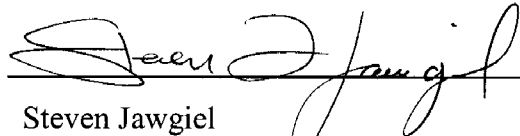
FINAL ORDER

IT IS HEREBY ORDERED that this Consent Agreement and Final Order pursuant to 40 C.F.R. Sections 22.13 and 22.18 (U.S. EPA Docket No. RCRA-9-2009-0006) be entered and that Leading Edge Aviation Services pay a civil penalty of SIXTY-FIVE THOUSAND DOLLARS (\$65,000.00) due within thirty (30) days from the Effective Date of this Consent Agreement and Final Order, and complete the Supplemental Environmental Project as described in Section E of the Consent Agreement. Payment must be made pursuant to Section H of the Consent Agreement.

This Final Order shall be effective upon filing by the Regional Hearing Clerk.

03/31/09

Date



Steven Jawgiel
Regional Judicial Officer
United States Environmental Protection Agency,
Region IX

CERTIFICATE OF SERVICE

I hereby certify that the foregoing CONSENT AGREEMENT AND FINAL ORDER in the matter of Leading Edge Aviation Services (RCRA-09-2009-0006), dated March 31, 2009, has been filed with the Regional Hearing Clerk, and a copy was served on Counsel for Respondent, and Counsel for EPA, as indicated below:

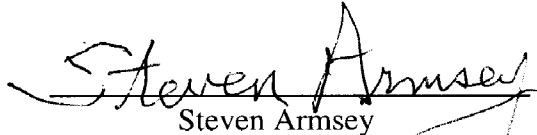
BY FIRST CLASS MAIL:
(With Return Receipt)

Respondent - Michael Manclark, President
Leading Edge Aviation Services
19301 Campus Drive (Suite 250)
Santa Ana, CA 92707

HAND DELIVERED:

Complainant - Rebecca Sugerman, Esq.
(By Counsel) Office of Regional Counsel
ENVIRONMENTAL PROTECTION AGENCY
75 Hawthorne Street
San Francisco, CA. 94105

Dated at San Francisco, Calif., this 2nd day of April, 2009.


Steven Armsey

For: Danielle Carr
Regional Hearing Clerk
EPA, Region 9

**ATTACHMENT 1
PROPOSAL**

SUPPLEMENTAL ENVIRONMENTAL PROJECT



Marten Law Group PLLC
1191 Second Avenue
Suite 2200
Seattle WA 98101
Phone: 206 292-2600
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www.martenlaw.com

October 10, 2008

Via FedEx Overnight Mail

Writer's Direct Line
206 292-2601
bmarten@martenlaw.com

Rebecca Sugarman, Esq.
Office of Regional Counsel
U.S. EPA, Region IX
75 Hawthorne Street
San Francisco, CA 94105

RE: *In the Matter of Leading Edge Aviation Services*
Supplemental Environmental Proposal

Dear Rebecca:

Please find enclosed a summary and backup documentation for a Supplemental Environmental Proposal submitted on behalf of Leading Edge Aviation Services, Inc., ("LEAS"), to resolve a portion of the penalty we have been negotiating relating to LEAS's Victorville, California aircraft painting facility.

This is a pollution prevention SEP. If implemented, it will eliminate the use of products containing Hexavalent Chrome, Hydrofluoric Acid, and Alodine. It will also dramatically reduce the amount of hazardous waste produced annually at the Victorville facility. A product called *PreKote* will be substituted for the existing chemicals used to clean and prepare aircraft for painting. The *PreKote* product has been endorsed by EPA and is used by the United States Air Force.

EPA's Chief of Design stated in a March, 2005 letter that "Manufacturers in the aerospace, military, and marine sectors and others who use *PreKote* will be participants in an important national effort to protect the environment and safeguard human health." (See Tab VIII).

The costs and benefits of the proposed SEP at LEAS's facility are set forth at Tab X. Acceptance by EPA of this SEP will result in a 70,000 gallon reduction in the generation of RCRA classified wastewater; elimination of Hexavalent Chrome, Hydrofluoric Acid, and Alodine coating process.

Rebecca Sugarman, Esq.
Office of Regional Counsel
U.S. EPA, Region IX
October 10, 2008
Page 2 of 2



The net annual cost to LEAS of converting to the *PreKote* process is \$188,094.18, after taking all offset savings into account, and assuming an average of 65 planes painted annually.

We hope EPA Region 9 will look favorably upon this pollution prevention SEP. Thank you for your consideration.

Very truly yours,

A handwritten signature in black ink, appearing to read "Bradley M. Marten". The signature is fluid and cursive, with a long horizontal stroke at the end.

Bradley M. Marten

Enclosure: Leading Edge Aviation Services Supplemental Environmental Proposal

LEADING EDGE AVIATION SERVICES

SUPPLEMENTAL ENVIRONMENTAL PROPOSAL

***“ELIMINATION OF Hexavalent Chrome and
Hydrofluoric acid in our processing”***

TABLE OF CONTENTS

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Various Awards for Pre-coat Transitions.....IX

Proposed SEP Impact and CostsX

SUMMARY OF PROPOSED SEP

Leading Edge is proposing a total "Transformation" of our Victorville facility away from the use of harmful Hexavalent Chrome and Hydrofluoric Acids in our process's.

The current process accepted by our industry for the painting of aircraft contains Hexavalent chromium that is a known cancer causing agent or carcinogen.

One of the key statements made by the EPA summarizes this proposed SEP and the benefits imposing a total change over makes.

Quote direct from the EPA's NPEP:

"The reduced risk to human health and the environment and the cost reduction in sampling/analysis as a categorical industrial user is immeasurable"

Additionally the removal of these agents will:

1. Eliminate the possibility of accidental leak to the environment and result in a safe and effective alternate method to current process.
2. Reduce hazardous generation of waste water
3. Eliminates the applicators exposure to chemicals known to be carcinogens
4. Eliminates the acid etch and chromate conversion coating solid and liquid waste stream.
5. Reduce paint usage and related VOC's and waste

The following information will provide:

1. PreKote description
2. Hazardous vs. Non Hazardous comparison
3. MSDS's verifying the extreme differences in these chemicals
4. EPA letters and Government Awards verifying and confirming the effectiveness of the SEP.

The following are a few excerpts of information obtained on the requested SEP and are direct quotes from the EPA. Aircraft mentioned are of different types but the process remains the same. Key points have been colored.

Mr. Lee Bohme, EPA Region 6 Pretreatment Coordinator: observed the PreKote application process at the Sheppard AFB.⁴ Mr. Bohme observed that PreKote is applied with a pump-up sprayer (garden type) to the entire exterior of the aircraft. While still wet, the PreKote is scrubbed on the surface with abrasive pads (180 grit scrub pads which are similar to large kitchen or household pads) to evenly distribute the PreKote solution and to “work it into the pores.” The entire surface is then washed with water before it dries. This process is repeated two more times per aircraft. At the Sheppard AFB approximately 300 gallons of process wastewater per aircraft is generated from these three washings of the PreKote applications. The Columbus AFB also reports similar process wastewater generation for the F1-A aircraft with 12 gallons of PreKote applied during each application followed by a rinse of 100 gallons of water.⁵ **Mr. Bohme reported that the PreKote process reduces the required amount of polyurethane paint and generates about half of the amount of wastewater as compared to the wastewater generated by the Alodine system.**

⁴Bohme, Lee, U.S. EPA Region 6. “PreKote,” Memorandum to EPA Regional Pretreatment Coordinators, March 19, 2003.

⁵Mundrick, Douglas, U.S. EPA Region 4. Memorandum to Deborah Nagle, U.S. EPA Office of Wastewater Management, February 11, 2003.

EPA Conclusions “EPA Memorandum April 2003”

EPA finds that the use of PreKote is not one of the six core Metal Finishing effluent guidelines operations (see 40 CFR part 433.10(a)) and use of PreKote does not automatically trigger categorical industrial user (CIU) status under the Metal Finishing effluent guidelines. PreKote is a non-chromating application that does not chemically convert, react with the metal substrate, or leach metals from the substrate. Facilities engaged in metal finishing operations should consult the applicability section of the Metal Finishing effluent guidelines to determine whether other operations trigger CIU status.

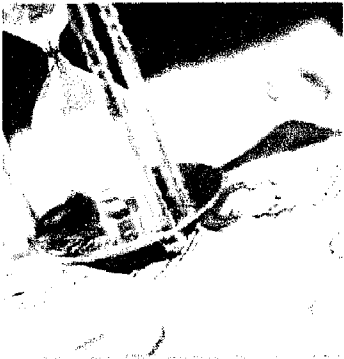
Based on the available chemical information, PreKote is a non-chromic, non-hazardous and non-toxic alternative to chromate conversion coatings for metal surface painting preparation operations. PreKote reduces worker exposure to solvents and other toxic chemicals traditionally used in the painting operation. PreKote is a pollution prevention technology as it reduces the generation of metal surface painting preparation wastewater and the amount of pollutants in that wastewater. PreKote may provide facilities a suitable alternative to chromate conversion coatings for metal surface painting preparation operations. Questions on this memorandum should be directed to Ms. Jan Pickrel, U.S. EPA, Office of Wastewater Management, or Mr. Carey A. Johnston, P.E., U.S.

Prekote Description & Safety Benefits

SECTION II

PreKote[®] is a non-chromium surface pretreatment

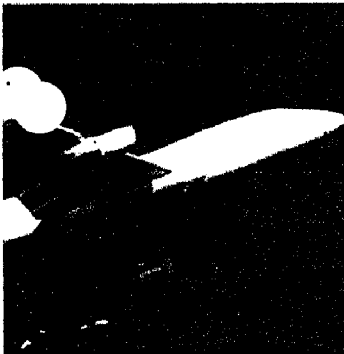
for use on metal and composite substrates prior to priming and paint. PreKote offers superior adhesion, improved paint flexibility and advanced corrosion protection on painted surfaces.



Dramatically reduces expensive pretreatment process time

Replaces at least four chemicals used with other processes

Cuts costs in shipping, PPE, wastewater treatment and storage



Outperformed other pretreatments in over a decade of testing

Recognized with approvals – commercial, military, general aviation

Tested safe and improves adhesion on a wide variety of substrates



Replaces toxic hexavalent chromium used in other pretreatments

Awarded with EPA non-CIU (Categorical Industrial User) status

Eliminates or reduces the amount of wastewater treatment required

Prekote vs.
Current
Alodine/
Chromic Acid
Method

PreKote®

	PreKote® Surface Pretreatment	Chromated Conversion Coating
pH	10.0-11.5	1.3 to 3.0
Corrosive	Safe, buffered alkali	Hazardous, strong acid
Chronic Toxicity	NO	YES
RCRA Corrosive Waste (D002)	NO	YES
Biodegradable	YES	NO
NFPA Health	1 May cause minor skin irritation	3 Materials which upon short-term exposure could cause serious temporary or residual injury even though prompt medical treatment is given, including those requiring protection from all bodily contact.
Flammability	0	0 or 1
Reactivity	0	0
Contact Hazards	0	3 Highly Reactive
HAZARDOUS 29 CFR 1910.1200	NO	YES
DECOMPOSITION PRODUCTS	NONE	TOXIC
SARA 311/312	NONE	ACUTE/CHRONIC
CARCINOGEN	NO	Many contain fluoride, hexavalent or trivalent chromium which are suspected carcinogens.
REACTIVITY	None	Usually reacts with strong alkalis, glass, concrete, certain metals, silica containing materials, rubber, leather, and many organics. May liberate corrosive gases upon decomposition.
40 CFR part 433.10(a)	Not Regulated	Regulated
Categorical Industrial User (CIU) status	No	YES

* EPA Memorandum National Regulatory Determination for the PreKote Surface Preparation Process, April 1, 2003, from the offices of the Director of Water Permits Division, Office of Wastewater Management and Director of Engineering and Analysis Division, Office of Science and Technology



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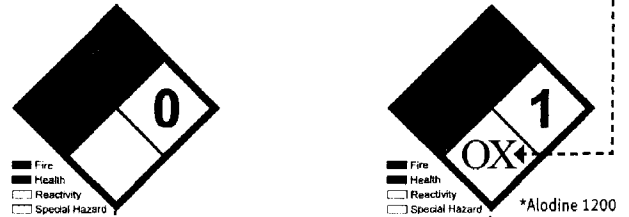
PreKote®

Surface Pretreatment



The following diagram is a breakdown of how PreKote® Surface Pretreatment's MSDS compares with traditional chromated conversion coatings (such as alodine):

This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



MSDS COMPARISON WITH TRADITIONAL CHROMATED CONVERSION COATINGS (such as alodine)

	PreKote® Surface Pretreatment	Chromated Conversion Coatings (alodine*)
pH	10.0 - 11.5	1.3 - 3.0
Corrosive	Safe, buffered alkali	Hazardous, strong acid
Chronic Toxicity	No	Yes
RCRA Corrosive Waste (D002)	No	Yes
Biodegradable	Yes	No
NFPA Health	1,0,0 ←	3,1,0,OX ←
Hazardous 29 CFR 1910.1200	No	Yes
Decomposition Products	None	Toxic ←
SARA 311/312	None	→ Acute/Chronic
Carcinogen	No	Yes
Reactivity	None	Strong alkalis, glass, concrete, certain metals, silica containing materials, rubber, leather.
40 CFR Part 4333.10(a)*	Not Regulated	Regulated
Categorical Industrial User (CIU) Status	No ←	Yes

* EPA Memorandum National Regulatory Determination for the PreKote® Surface Preparation Process, April 1, 2003, from the offices of the Director of Water Permits Division, Office of Wastewater Management and Director of Engineering and Analysis Division, Office of Science and Technology.

Does not trigger CIU status.

SARA 311/312:

Chromated conversion coatings (CCC), such as alodine are categorized as carcinogens, which means they can cause cancer. CCC users, along with people exposed to waste streams and bi-products containing CCC are at a higher risk for cancer. OSHA regulations require that users handling CCC & CCC-based products wear full hazardous materials suits and forced air breathing systems.

A toxic substance acts as a poison with serious health, safety and environmental issues surrounding use. Its toxicity is one of the reasons why the EPA has given it Categorical Industrial User (CIU) status and requires monitoring of all alodine-related waste streams.

For additional information regarding chromated conversion coatings, refer to the court case Public Citizen vs. Chao (<http://www.citizen.org/documents/hexavalentchromiumopinion.pdf>). This lawsuit was filed by the Public Citizen Health Research Group against OSHA (12/24/2002) to get the permissible exposure limit of hexavalent chromium lowered to protect worker safety.

Prekote MSDS

SECTION IV



MATERIAL SAFETY DATA SHEET

This MSDS is compatible with ISO 11014 – 1:1994 and conforms to ANSI standard Z400.1 – 1993.

SAFETY DATA SHEET

This SDS complies with 91/155/EEC and 2001/58/EC

Section 1: Chemical Product and Company Identification

PRODUCT NAME: PreKote™ Surface Pretreatment
INTENDED USES: Non-chromated surface pretreatment replacement.

Manufacturer: Pantheon Chemical
225 West Deer Valley Road
Suite #4
Phoenix, Arizona 85027-2108

Telephone: (623) 780-2296
Toll Free: 1-888-824-2918
FAX: (623) 516-0414

Supplier: Pantheon Chemical
225 West Deer Valley Road
Suite #4
Phoenix, Arizona 85027-2108

Telephone: (623) 780-2296
Toll Free: 1-888-824-2918
FAX: (623) 516-0414

Date MSDS/SDS Prepared: May 25, 2007

Section 2: Composition, Information on Ingredients

PRODUCT COMPOSITION	APPROX %	ACGIH TLV	OSHA PEL	NIOSH REL	CAS NO.	EINECS	SYMBOL	RISK
Water	80-95	None	None	None	7732-18-5	231-791-2	None	None
Diethylene Glycol Monobutyl Ether (DGBE)	<3	None	None	None	112-34-5	203-961-6	Xi,	R:36
N-Methyl-2-Pyrrolidone (NMP)	<3	None	None	None	872-50-4	212-828-1	Xi,	36/38

Some items on this MSDS may be designated as trade secrets. Bonafide requests for disclosure of trade secret information to medical personnel must be made in accordance with the provisions contained in 29 CFR 1910.1200 I 1-13.

The full text for all R-Phrases is shown in Section 16.

Section 3: Hazards Identification

HAZARD CLASSIFICATION: Non-flammable (based on IMO and DOT)
 FIRE AND EXPLOSION: None
 APPEARANCE: Clear Amber Liquid

Potential Health Effects

INHALATION:
 SKIN CONTACT:
 EYE CONTACT:
 INGESTION:
 R: 36
 R: 38

Potential Symptoms

No problems are expected.
 May cause mild skin irritation.
 Eye irritation may result.
 May be harmful if swallowed.
 Irritant to eyes.
 Irritating to Skin

NFPA RATINGS:

Component	Health (Blue)	Flammability (Red)	Reactivity (Yellow)	Special (White)
PreKote	1	0	0	--

Section 4: First Aid Measures

Emergency and First Aid Procedures

GENERAL: Flush any exposed area with plenty of water.
 SKIN CONTACT: Wash thoroughly with soap and rinse with water.
 EYE CONTACT: Rinse immediately with water and seek medical advice.
 INGESTION: Drink large amount of water. Do NOT induce vomiting.
 Seek medical advice.
 INHALATION: No problems are expected.

Section 5: Fire-fighting Measures

FLASH POINT: None
 FLAMMABLE LIMITS IN AIR (% by vol): Not applicable
 EXTINGUISHING MEDIA: Not Applicable
 SPECIAL FIREFIGHTING PROCEDURES: Not Applicable
 UNUSUAL FIRE AND EXPLOSION HAZARDS: None

Section 6: Accidental Release Measures

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Product is biodegradable. Clean up as much as possible and place in a suitable container for later disposal.
 Prevent spills or contaminated rinse water from entering storm drains, drywells, watercourses, or land areas.
 Reference Section 15 on applicable regulations.

DISPOSAL METHOD:

Dispose in accordance with Federal, State and local regulations.

Section 7: Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

- Do not store in temperatures below 32 F.
- Wear proper protective equipment and avoid contact with skin, eyes, or clothing.
- Wash hands after handling this product. Keep out of reach of children.
- Follow all applicable local regulations for handling and storage.
- Utilize chemical segregation from acids.

SPECIFIC USES:

This product is a non-chromated surface pretreatment for preparing metal or composites for painting.

INFORMATION ON EMPTIED CONTAINER

Dispose of this container according to local, state, and federal laws in your country.

Section 8: Exposure Controls/Personal Protection

EXPOSURE GUIDELINES

EXPOSURE LIMITS:	Reference Section 2
VENTILATION:	No special precautions required
SPECIAL VENTILATION CONTROLS:	None required
RESPIRATORY PROTECTION:	None required
HAND PROTECTION:	Rubber Gloves
EYE PROTECTION:	Safety Glasses, Chemical Goggles, or Face shield
SKIN PROTECTION:	Suitable protective clothing to prevent skin contact
OTHER EQUIPMENT:	Make safety shower, eyewash stations, and hand washing equipment available in the work area
WORK/HYGIENE PRACTICES:	Avoid contact with eyes. Wash hands after handling.
ENVIRONMENTAL EXPOSURE CONTROLS:	None required

Section 9: Physical and Chemical Properties

BOILING POINT:	219° F (104°C)
SPECIFIC GRAVITY (@25 °C):	1.01
VAPOR PRESSURE OF PRODUCT:	
PreKote	17.3 mmHg @ 20° C
VAPOR PRESSURE OF COMPONENTS:	
DGBE	0.02 mmHg @ 20° C
NMP	0.30 mmHg @ 20° C
FREEZING POINT:	28° F (-2 °C)
SOLUBILITY IN WATER:	100%
APPEARANCE - COLOR:	Clear Amber
PHYSICAL STATE:	Liquid
ODOR:	None
PH	10.5—11.5
CORROSIVE	No

Section 10: Stability and Reactivity

STABILITY:	Stable.
CONDITIONS TO AVOID:	None known
INCOMPATIBILITY (MATERIALS TO AVOID):	Strong acid solutions. This product will have an exothermic reaction with strong acid solutions.
HAZARDOUS DECOMPOSITION PRODUCTS:	None
HAZARDOUS POLYMERIZATION:	Will not occur

Section 11: Toxicological Information

No information is available for the product mixture.

SKIN IRRITATION:	Product	Moderate
EYE IRRITATION:	DGBE	Severe
	NMP	Moderate
ACUTE TOXICITY (LD50):		
LD50 (Oral Rat):	DGBE	5660 mg/kg
LD50 (Oral Rat):	NMP	3914 mg/kg
LD50 (Skin Rabbit):	NMP	8 g/kg
REPRODUCTIVE:		
TDL ₀	NMP	9700 mg/kg
CARCINOGENIC INFORMATION:		
NTP:	None listed	
OSHA	None listed	
IARC:	None listed	

CALIFORNIA: The following levels represent the No Observable Effects Levels (NOEL) for NMP. Reference Section 15, Regulatory Information.

Maximum Allowable Daily Level:	3,200 ug/day inhalation
Maximum Allowable Daily Level:	17,000 ug/day dermal

NOTE: Normal use of PreKote will result in exposure levels much less than the NOEL for NMP.

AMES TEST RESULTS: No information is available

OTHER INFORMATION:

Only Selected Registry of Toxic Effects of Chemical Substances (RTECS) data is presented. See actual entry in RTECS for complete information.

Section 12: Ecological Information

BIODEGRADABLE:	Yes
BIOACCUMULATION:	No information is available.
AQUATIC TOXICITY:	NMP: 100 % NMP may be harmful to aquatic life at concentrations above 100 mg/l. The LC50 (Pimephales promelas, 96 hours) = 100 mg/L; and the LC50 (Ceriodaphnia dubia, 48 hours) = 100 mg/L.
OTHER INFORMATION:	None
1999/45/EC Annex III	No Environmental hazards

Section 13: Disposal Considerations

Completely rinse container prior to disposal. Dispose of in accordance with Federal, State and local regulations. Large quantities of waste may require adjustment to a neutral pH. None of the chemicals used in the product are listed as a Priority Pollutant in Appendix A to 40 CFR, Part 423—126 Priority Pollutants.

Section 14: Transport Information (per 49 CFR 172.101)

LABEL FOR CONVEYANCE (EU):



ROAD TRANSPORT:

DOT	Not Regulated
UN NUMBER:	None
DOT / ADR HAZARD CLASS:	None
DOT / ADR LABELS:	None
PLACARD:	None
DOT / ADR PACKAGING GROUP:	None
HAZARD NUMBER – ADR:	None
DOT / ADR PROPER SHIPPING NAME:	None
EPA HAZARDOUS WASTE CLASS:	None
MARINE POLLUTANT:	None
DOT REPORTABLE QUANTITY:	None

RAIL TRANSPORT:

RID CLASS No.:	None
RID PACKING GROUP:	

OCEAN TRANSPORT:

UN NUMBER SEA:	None
IMDG CLASS:	
IMDG PACKING GROUP:	
EmS No.:	
MARINE POLLUTANT:	
SEA TRANSPORT NOTES:	

AIR TRANSPORT:

IATA/ICAO CLASS:	None
AIR PACKING GROUP:	

Revision Date: 1/17/04 Rev 2

Section 15: Regulatory Information

TOXIC SUBSTANCES CONTROL ACT (TSCA) STATUS:

All of the ingredients in this product are TSCA listed.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III SECTION 313 SUPPLIER NOTIFICATION:

This regulation requires submission of annual reports of toxic chemical(s) that appear in section 313 of the Emergency Planning and Community Right To Know Act of 1986 and 40 CFR 372. This information must be included in all MSDS's that are copied and distributed for the material.

The Section 313 toxic chemicals contained in this product are: Glycol Ethers, NMP

CALIFORNIA PROPOSITION 65:

This regulation requires a warning for California Proposition 65 chemical(s) under the statute.

The California proposition 65 chemical(s) contained in this product are: NMP NMP is known to the state of California to cause reproductive harm. The following levels represent the No Observable Effects Levels (NOEL) for NMP:

Maximum Allowable Daily Level: 2003 Draft: 3,200 ug/day inhalation

Maximum Allowable Daily Level: 2003 Draft: 17,000 ug/day dermal

NOTE: Normal use of PreKote will result in exposure levels much less than the NOEL for NMP.

STATE RIGHT-TO-KNOW TOXIC SUBSTANCE OR HAZARDOUS SUBSTANCE LIST:

Florida Toxic Substance(s):	None
Massachusetts's hazardous substance(s):	NMP
Pennsylvania hazardous substance code(s):	NMP
New Jersey	None

CLEAN AIR ACT AMMENDMENTS (1990):

SECTION 112, HAZARDOUS AIR POLLUTANTS:

This substance is listed Hazardous Air Pollutant Glycol Ethers

SECTION 111, VOLATILE ORGANIC COMPOUNDS NMP

This substance is subject to compliance with emission standards of 40CFR Part 60: NNN, RRR.

CLEAN WATER ACT: None of the chemicals used in the product are listed as a Priority Pollutant in Appendix A to 40 CFR, Part 423—126 Priority Pollutants.

CANADA:

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS)

Classification for this product is:

DGBE: Canada Gazette, Part II, 122(2)(01 Jan 88)

NMP: Canada Gazette, Part I, 135 #12:940 (24 Mar 2001)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

DSL listed:

DGBE: Yes NMP: Yes

EUROPEAN UNION:

This product has been reviewed for compliance with the following European Community Directives: Directive 67/548/EEC, Directive 2001/59/EC, Directive 1999/45/EC, Directive 91/155/EC, Directive 2001/58/EC, and Directive 2001/60/EC.

Note: All components of this product are listed in EINICS.

Rev 2

COMPONENT	EINEC/ ELINC NUMBER	EINEC/ ELINC STATUS	CMR CLASSIFICATION	DANGER SYMBOL	RISK PHRASE NUMBER	SAFETY PHRASE NUMBER	WGK	C
DGBE	203-961-6	LISTED	Xi, R 36	Xi	R36	S(-2)26	0	
NMP	212-828-1	LISTED	Xi, R 36/38	Xi	R: 36/38	S(-2)41	1	>=10%

EINECS: European Inventory of Existing Commercial Chemical Products.

ELINCS: European List of Notified Chemical Substances

Section 16: Other Information

The information presented herein has been compiled from sources considered to be dependable and is accurate to the best of Pantheon Chemical, Inc.'s knowledge. However, Pantheon Chemical, Inc. makes no warranty whatsoever, expressed or implied, of MERCHANTABILITY or FITNESS FOR THE PARTICULAR PURPOSE, regarding the accuracy of such data or the results to be obtained from the use thereof. Pantheon Chemical, Inc. assumes no responsibility for the injury to recipient or to third persons or for any damage to any property and recipient assumes all such risks.

Full Text:

European Community Hazards Identification:

R: 36 Irritant to eyes.

R: 38 Irritating to Skin

S: (2-) Keep out of the reach of children

S: 41 In case of fire and/or explosion do not breathe fumes.

S: 26 In case of contact with eyes rinse immediately with plenty of water and seek medical advice.

S: 36/37 Wear suitable protective clothing and gloves.

Danger Symbol(s): Xi Irritant

Revision Comments: Physical Characteristics changes

Revision Date: 1/24/03

Revision Number: 2

Information Sources: RTECS

Prekote Process Description

SECTION V

PreKote®

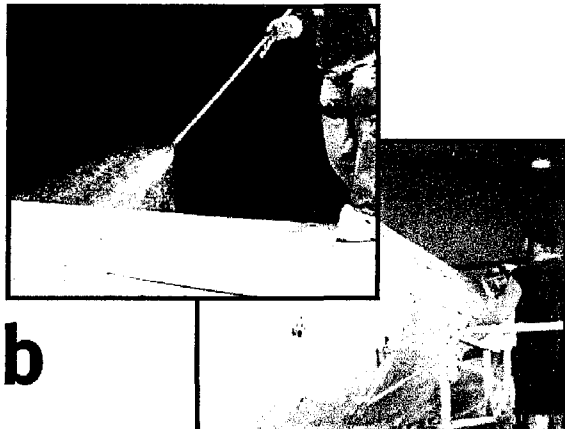
Is a non-chrome surface pretreatment for use on metal and composite substrates prior to priming and paint. PreKote offers superior adhesion, improved paint flexibility and advanced corrosion protection on painted surfaces.

Prep

- Mask all areas that will not be primed or polished
- Rinse aircraft with water to remove any dust from sanding process
- Solvent clean all areas showing residual fuel or hydraulic fluid from surfaces that will have PreKote applied

1

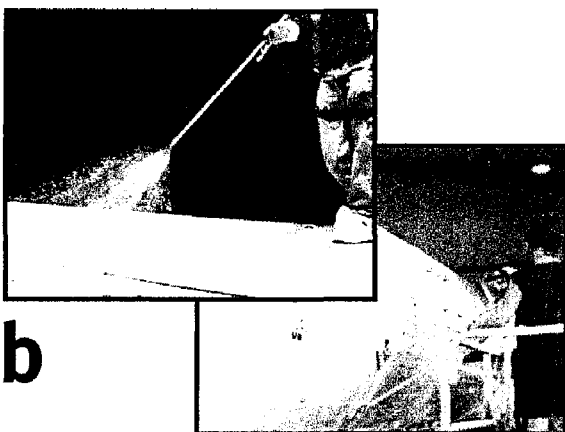
Spray & Scrub



- Apply flood coat of PreKote with spray gun (approximate tip size: .065" - .071")
- Use pole scrubbers with approved 180 grit aluminum abrasive pad
- Acceptable to power abrade using jitterbug or orbital sanders in high erosion or contaminated areas
- Scrub PreKote into a rich foam
- Work in small areas from top and outboard working in and down
- Pay particular attention to high erosion areas
- Maintain an overlap in scrubbing strokes
- DO NOT allow PreKote to dry
- If work area dries rinse with water and reapply PreKote

2

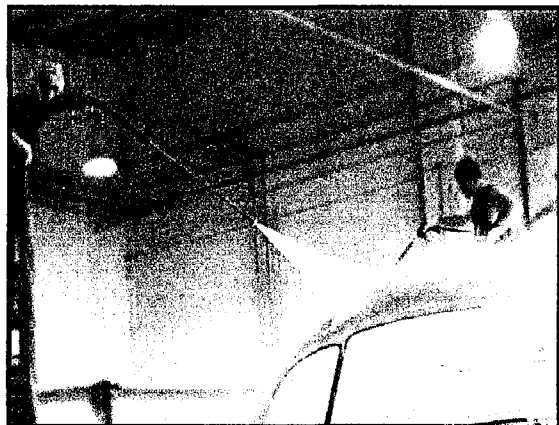
Spray & Scrub



- Repeat step 1 (DO NOT rinse 1st application or allow PreKote to dry)

3

Rinse & Dry



- Rinse immediately after 2nd scrub with water (city quality or better)
- Rinse from top down
- Check for water break-free surface (typically within 10 seconds for PreKote)
- If surface remains contaminated reapply PreKote per steps 1 and 2
- DO NOT solvent wipe after PreKote application
- If there is a wax-like film reapply PreKote per step 2
- Allow to dry before priming (hot air drying is acceptable)
- Prime within 24 hours
- If there is dust on surface wipe with water-dampened lint-free cloths prior to priming
- If there is fuel seepage on surface wipe with PreKote-dampened lint-free cloth in one direction (change cloths frequently). Then wipe with dry lint-free cloth and prime immediately.

DO NOT solvent wipe after PreKote application
DO NOT use a tack rag
DO NOT allow PreKote to dry during either application (no dwell time needed)
DO NOT use any other type of abrasive pad than that recommended
DO NOT wait to prime (prime within 24 hours)



To Order Contact:
AVIALL
1-800-AVIALL-1 • www.aviall.com

PreKote-1 Quart (Part# 065-1002)
PreKote-1 Gallon (Part# 065-1030)
PreKote-5 Gallon Pail (Part# 065-1040)
PreKote-55 Gallon (Part# 065-1050)
PreKote-Medium Repair Kit (Part# 065-1073)
PreKote-Large Repair Kit (Part# 065-1072)

Also Available



PreKote application procedures may vary. Always refer to instructions and/or specifications provided for specific application. Always review PreKote MSDS for safety procedures. MSDS is available from your technical representative or at www.PantheonChemical.com. For more information or technical assistance contact Pantheon Chemical at (888) 608-7888.

Technology by
PANTHEONCHEMICAL®

PreKote®

Surface Pretreatment



APPLICATION PROCEDURE

PREKOTE AIRCRAFT APPLICATION

The following PreKote application procedure is recommended for all aircraft to achieve superior adhesion of primer to substrate surfaces.

INSTRUCTION

In preparation for PreKote application, aircraft stripping and cleaning shall be accomplished in accordance with standard operating procedures.

For scuff sand applications, thoroughly rinse the aircraft to remove all sanding debris.

After sealing, prepare and mask only those areas which will not be primed. PreKote may be used on all aircraft substrates to be primed.

APPLICATION: It is important to scrub the entire surface area of the aircraft to ensure high quality surface preparation performance.

STEP 1

First application of PreKote®

Apply a flood coating of PreKote and agitate the surface to a rich lather with burgundy (aluminum oxide) scrub pads and extension poles (if necessary).

Do not allow PreKote to dry on the surface.

Work in areas of approximately 500 square feet depending on air flow, temperature, and humidity. Do not rinse.

STEP 2

Second application of PreKote®

Apply a second application of PreKote immediately to the work area following the completion of Step 1.

Agitate to a rich lather.

It is important to remove all the soil and contaminants lifted by the first PreKote application.

As in Step 1, do not allow PreKote to dry on the surface.

STEP 3

Rinse

Immediately following Step 2, thoroughly rinse each completed area with generous amounts of water*, ensuring seams and depressions are flushed of excess PreKote.

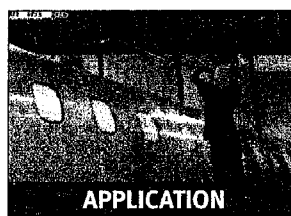
A water break-free surface will be obtained for most applications (typically for 2-10 seconds). *Water breaks during rinse indicate contaminants are still present. If this occurs, soak a very fine grit hand pad in PreKote, agitate the affected area, and rinse; repeat until a water break-free rinse is achieved.*

*Water of adequate quality must be used, in most cases city water is acceptable. Please contact Pantheon Chemical for more information.

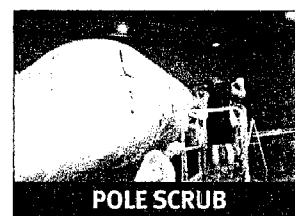
GENERAL NOTES

Begin on the top and outboard of the aircraft, working in and down. For aircraft pretreatment, Pantheon Chemical recommends a pole scrub application however, pneumatic sanders can also be used.

Horizontal surfaces will allow for larger work areas than vertical areas. The top of the vertical stabilizer will require smaller work areas in particular. For superior performance, emphasis must be given to the high erosion areas just aft of the leading edges on the wings and engines, the radome, the vertical stabilizer, and aft of the cockpit windows. High soil areas such as the bottom of the aircraft engines and fuel access panels need extra care to achieve a clean surface.



APPLICATION



POLE SCRUB



RINSE



FINAL CHECK

STEP 4

Final Check

Allow surfaces to static air dry. There should be no visual evidence of a wax like appearance on the surface.

Inspect all areas previously masked to prevent intrusion of chemicals used for surface preparation and to ensure chemicals have NOT entered any cavities. Wipe clean any fuel or hydraulic leaks with a clean lint-free cotton rag slightly dampened with PreKote. If dust settles on the surface prior to primer application, wipe the surface with clean, lint-free, water dampened cotton rags; change rags if the color becomes dark grey.

Do not solvent wipe or use tack rags after PreKote application.

Prime and paint

CAUTION: The maximum time allowed prior to coating application is 24 hours in a clean environment. Excess time prior to coating application may cause degradation of the surface condition.



Technology by
PANTHEON

Toll Free 888.608.7888 • www.pantheonchemical.com

Leading Edge Aviation Services - PreKote® Aircraft Technical Order

Application of non-chromated PreKote Surface Pretreatment to aircraft in repaint applications.

1 SCOPE

This technical order documents the procedure to be followed to achieve superior adhesion of paint systems to exterior aircraft surfaces in scuff sand and repaint applications. PreKote shall be used on old and aged topcoat, primer, aluminum, magnesium, steel, titanium, and composite substrates. PreKote replaces application of MIL-C-5541 Type I, Chemical Conversion Coatings on Aluminum and Aluminum Alloys (and on Titanium), AMS-M-3171, Magnesium Alloy, Process for Pretreatment and Prevention of Corrosion, and TT-C-490 Chemical Conversion Coatings and Pretreatments for Ferrous Surfaces (Base for Organic Coatings).

2 SURFACE PREPARATION

- 2.1 In preparation for PreKote application, aircraft stripping or scuff sanding operations shall be accomplished in accordance with customer standard operating procedure.
- 2.2 Thoroughly rinse aircraft to remove sanding dust from either the detail stripping or scuff sanding processes.
- 2.3 Accomplish seam sealing in accordance with customer standard operating procedure. PreKote application and agitation does not affect sealant and sealant cure.
- 2.4 Masking - Mask only those areas which will not be painted. PreKote shall be used on all aircraft substrates, including old primer and scuff sanded painted surfaces (fuselage, wings, fairings, stabilizers, composite etc).

3 MATERIALS AND EQUIPMENT

PreKote

Pantheon Chemical
1-888-824-2918
22601 N. 19th Ave, Suite 139
Phoenix, AZ 85027

Alumina Oxide Hand Pad
(180-220 grit)

3M Scotch-Brite #07447
Norton Bear-Tex #66261074700 (6"x9")

Cloth, 100 % Cotton, White, Lint
free, non-recycled*

DuPont Sontara Aerospace Grade Wipe,
#K802

Scotch-Brite Conformable Head
Applicator Cleaner Head*

3M #261

Extension Pole*

Wooster #3UW58
6' to 12' length, 6" increments, universal
threaded tip.

Stainless Steel Hydra-Clean
Spray Gun*

Graco #208008, Series D

.065" - .071" Spray Tip*

Graco #220-220

* Or equivalent.

4 APPLICATION OF PREKOTE

- 4.1 Prekote application (**Fuselage, Wings, Horizontals, Vertical, fairings etc**) -
Apply a flood coating of PreKote to the surface of the aircraft using Graco
Hydratech spray gun, and Graco spray gun tip, .065"-.071" or equivalent.
- 4.2 Thoroughly scrub PreKote onto surface using alumina oxide pad on pole scrubber
agitating to a rich lather. Attempt to maintain an overlap in scrubbing strokes to
insure complete coverage of PreKote.

**WARNING: Use ONLY alumina oxide pads. Use of any other pad may
contaminate surface and prevent adhesion of primer.**

CAUTION: Begin Prekote application process on the top and outboard of the aircraft,
working in and down. Work in small areas, so as to prevent PreKote from drying on the
surface. Horizontal surfaces will allow for larger work areas than vertical surfaces. The
top of the vertical stabilizer will require smaller work areas in particular. Pay particular
attention to the high erosion areas just aft of the radome, aft of the cockpit windows, aft
of the leading edges on the wings, stabilizers and engines. Failure to prepare properly
may result in limited adhesion.

- 4.3 Do not permit PreKote to dry on surface of aircraft.
- 4.4 If work area begins to dry, rinse surface with water and continue with PreKote application.
- 4.5 Apply second application of PreKote immediately following the completion of the first scrub in the work area. Thoroughly scrub PreKote onto surface using alumina oxide pad on pole scrubber agitating to a rich lather again. Attempt to maintain an overlap in scrubbing strokes to insure complete coverage of PreKote.
- 4.6 Do not permit PreKote to dry on surface of aircraft.
- 4.7 Rinse immediately after second application with copious amounts of water. Rinse from top down ensuring seams and depressions are flushed of excess Prekote.

Note: It is acceptable to use a high pressure rinse not to exceed 1200 PSI.

- 4.8 A water break-free surface will be obtained in most cases. Note: the water break-free appearance is much faster than traditional processes (typically 2-10 seconds). If a water break-free surface is not obtained reapply PreKote and spot agitate with a 180 grit scotch-brite pad. If a water break-free surface is still not obtained, check for surface cleanliness with a clean white cloth, a slight gray residue is allowed.

CAUTION: Surface must be thoroughly rinsed to rinse off excess amounts of PreKote in order to achieve superior adhesion of coating system.

- 4.9 As to prevent any streaking remove masking as required and accomplish a final rinse.
- 4.10 Open all access doors and panels to remove any trapped water using lint free cotton cloths.
- 4.11 Permit aircraft to Static air dry. When dry, if a film or haze is present on the surface, then the rinsing was not adequate. Proceed to wipe the aircraft with lint free cotton cloths dampened with city water or better. A slight grey residue on the towel is allowed.

5 PAINTING OF SURFACE

- 5.1 Paint surface within 24 hours with required coatings system.
- 5.2 Removal of fuel and hydraulic fluid - Immediately prior to priming wipe all fuel and hydraulic fluid leaks with Prekote as follows:
 - a) First prepare the primer for use.
 - b) Moisten a lint free cloth with Prekote and wipe the fluid off, in one direction so as not to smear the contaminant.

- c) In the same direction immediately wipe excess Prekote off with a dry lint-free cloth and apply primer to the area.

CAUTION: Do not use solvent on surfaces treated with PreKote. If the aircraft has not been primed within 12 hours of PreKote application and airborne particulates have soiled the horizontal surfaces, wipe surfaces in question with a clean lint free cotton cloth moistened with city water or better to clean prior to painting. Do not soak cloth with water, moist is sufficient.

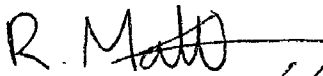
6 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- 6.1 Personal Protective Equipment shall be specified by Health and Safety at customer facility.

7 PREKOTE APPLICATION CONDITIONS

- 7.1 Temperature 40 - 110 degrees F
7.2 Humidity 0-100% RH
7.3 Water City Water or better

Approved:


6/27/2008

Robert Mather
Director of Engineering
Pantheon Chemical

Hexavalant
Chrome
Alodine 1000
and AC5
Hydrofluoric
Acid Usage



2007 Hexavalent Chrome Alodine 1000 and AC5 Hydrofluoric Acid Usage

Number of Aircraft Painted in 2007:

B737 – 23
B757 – 22
B767 – 17
B747 – 3
B777 – 5
A320 – 4
A340 – 1
MD80 – 1
L1011 – 1
DC-10 – 1

Hexavalent Chrome Alodine 1000 used to process aircraft:

- 130 Drums of mixed alodine 1000 = 7,150 gallons
- 26 drums of pure alodine to make 130 drums mixed
- \$198.42 per drum = \$5,158.92
- Waste water generated in the Alodine rinse = 68,800 gallons
- Disposal cost of .68 cents per gallon = \$46,784.00



AC5 Hydrofluoric Acid:

- 143 Drums of mixed AC5 = 7,865 gallons
- 29 drums of pure AC5 to make 143 drums
- \$436.10 per drum = \$12,646.90
- Waste water from the AC5 rinse – 69,243 gallons
- Disposal cost of .68 cents per gallon = \$47,085.24

**THE TOTAL ESTIMATED HAZARDOUS GALLONS
OF WATER CONTAINING HEXAVALENT CHROME
PER YEAR = 138,043 GALLONS**

Alodine/
Chromic Acid
MSDS

Material Safety Data Sheet

Material Name: ALODINE® 1000 LIQUID

ID: 234088

*** Section 1 - Chemical Product and Company Identification ***

Product Trade Name ALODINE® 1000 LIQUID

Manufacturer Information

Henkel Surface Technologies
Henkel Corporation
32100 Stephenson Highway
Madison Heights, MI 48071

Contact Phone: (248) 583-9300

Chemtrec Emergency # (800) 424-9300

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Component	Percent
7738-94-5	Chromic acid	<1
Proprietary	Zirconium fluoride compound	<1

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Chromium (VI) compounds- water soluble, Chromium (VI) compounds, Chromium compounds, Chromium, inorganic compounds, Zirconium compounds, n.o.s., Fluorides.

*** Section 3 - Hazards Identification ***

Emergency Overview:

WARNING! This product is irritating to the respiratory system and skin. May cause blindness. Contact with broken skin may result in ulcers. Prolonged or repeated breathing may cause ulceration of nasal membranes. Cancer Hazard. Contains material which can cause cancer.

Eye Contact:

This product is severely irritating to the eyes.

Skin Contact:

Contact with broken skin may lead to formation of firmly marginated "chrome sores". Product contains chromium, which may cause an allergic skin sensitization reaction. Massive overexposures may lead to kidney failure and death.

Skin Absorption:

A component in this product may be harmful or fatal if absorbed through the skin, especially if skin is damaged.

Ingestion:

Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion of high levels may produce kidney damage.

Inhalation:

Inhalation of mists of this product may cause severe irritation and burns to the respiratory tract.

Medical Conditions Aggravated by Exposure:

Pre-existing eye, skin and respiratory disorders.

*** Section 4 - First Aid Measures ***

Eye Contact:

In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Skin Contact:

Immediately take off all contaminated clothing. For skin contact, flush with large amounts of water. Seek immediate medical attention. If irritation persists, repeat flushing and get medical attention. Discard any shoes or clothing items that cannot be decontaminated.

Material Safety Data Sheet

Material Name: ALODINE® 1000 LIQUID

ID: 234088

Ingestion:

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Inhalation:

If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

*** Section 5 - Fire Fighting Measures ***

Flash Point: Not applicable

Method Used: Not applicable

Flammability Classification: Non-flammable

Upper Flammable Limit (UFL): Not applicable

Lower Flammable Limit (LFL): Not applicable

Fire & Explosion Hazards:

If evaporated to dryness, solid residue is an oxidizing agent and may cause spontaneous ignition of combustible materials.

Decomposition Products:

Irritating and toxic gases or fumes may be released during a fire.

Extinguishing Media:

Use any media suitable for the surrounding fires.

Fire-Fighting Instructions:

Firefighters should wear full protective clothing including self contained breathing apparatus.

*** Section 6 - Accidental Release Measures ***

Containment Procedures:

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during clean-up.

Clean-Up Procedures:

Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of collected material according to regulation.

*** Section 7 - Handling and Storage ***

Handling Procedures:

Do not get this material in your eyes, on your skin, or on your clothing. Do not inhale vapors or mists of this product. Wash thoroughly after handling. For industrial use only. Clothing or other material wet with this product and allowed to dry may become flammable.

Storage Procedures:

Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Manufacturer recommends storing above 40 °F. Protect from freezing.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines:

A: General Product Information

Follow all applicable exposure limits.

B: Component Exposure Limits

Chromic acid (7738-94-5)

ACGIH: 0.05 mg/m3 TWA (as Cr) (related to Chromium (VI) compounds, water-soluble)

OSHA: 2.5 µg/m3 Action Level (as Cr.); 5 µg/m3 TWA (as Cr. Cancer hazard - See 29 CFR 1910.1026) (related to Chromium (VI) compounds)

Material Safety Data Sheet

Material Name: ALODINE® 1000 LIQUID

ID: 234088

Zirconium fluoride compound (Proprietary)

- ACGIH: 5 mg/m3 TWA (as Zr) (related to Zirconium compounds)
10 mg/m3 STEL (as Zr) (related to Zirconium compounds)
OSHA: 5 mg/m3 TWA (as Zr) (related to Zirconium compounds)
10 mg/m3 STEL (as Zr) (related to Zirconium compounds, n.o.s.)
NIOSH: 5 mg/m3 TWA (as Zr, except Zirconium tetrachloride) (related to Zirconium compounds)
10 mg/m3 STEL (as Zr, except Zirconium tetrachloride) (related to Zirconium compounds)

Engineering Controls:

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

PERSONAL PROTECTIVE EQUIPMENT

As prescribed in the OSHA Standard for Personal Protective Equipment (29 CFR 1910.132), employers must perform a Hazard Assessment of all workplaces to determine the need for, and selection of, proper protective equipment for each task performed.

Eyes/Face Protective Equipment:

Wear chemical goggles; face shield (if splashing is possible).

Skin Protection:

Use impervious gloves. Use of impervious apron and boots are recommended.

Respiratory Protection:

If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

Work Practices:

Eye wash fountain and emergency showers are recommended.

*** Section 9 - Physical & Chemical Properties ***

Physical State: Liquid	Appearance: Clear orange
Odor: None	Vapor Pressure: Not determined
Vapor Density: Not determined	Boiling Point: 212 °F (100 °C)
Specific Gravity: 1.0 - 1.1	pH: <3.0
Viscosity: Not applicable	VOC: Not applicable
Solubility Water: Complete	Evaporation Rate: Not determined
Percent Volatile: Not applicable	Percent Solids: Not applicable

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability:

Stable under normal conditions.

Incompatibility:

This product may react with strong alkalis.

Decomposition Products:

None expected.

Hazardous Polymerization:

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Toxicity:

A: General Product Information

Industrial exposure to chromium may cause dermatitis, skin ulcers, perforation of the nasal septum, as well as cancers of the lungs, nasal cavity and paranasal sinuses.

Material Safety Data Sheet

Material Name: ALODINE® 1000 LIQUID

ID: 234088

B: Component Analysis - LD50/LC50

Zirconium fluoride compound (Proprietary)

Oral LD50 Mouse: 98 mg/kg

Carcinogenicity:

A: General Product Information

No information available for the product.

B: Component Carcinogenicity

Chromic acid (7738-94-5)

ACGIH: A1 - Confirmed Human Carcinogen (related to Chromium (VI) water soluble compounds)

OSHA: Workers exposed to Cr(VI) are at an increased risk of developing lung cancer - see 29 CFR 1910.1026 (related to Chromium (VI) compounds)

NIOSH: potential occupational carcinogen (related to Chromium (VI) compounds)

NTP: Known Carcinogen (related to Chromium hexavalent compounds) (Select Carcinogen)

IARC: Monograph 49 [1990] (evaluated as a group) (related to Chromium (VI) compounds) (Group 1 (carcinogenic to humans))

Zirconium fluoride compound (Proprietary)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (related to Zirconium compounds)

Chronic Toxicity

Excessive exposure to chromium VI can produce allergic skin sensitization reactions and severe nasal irritation, scarring and damage to the lungs, liver and kidney damage.

Epidemiology:

No information available for the product.

Neurotoxicity:

No information available for the product.

Mutagenicity:

Chromium VI compounds have been mutagenic in bacteria, caused chromosome aberrations in mammalian cells and have been associated with increased frequencies of chromosome aberrations in lymphocytes in chromate workers.

Teratogenicity:

Chromium VI compounds have caused birth defects and affected fertility in laboratory animals.

Other Toxicological Information:

None available.

*** Section 12 - Ecological Information ***

Ecotoxicity:

A: General Product Information

No data available for this product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Environmental Fate:

No data is available concerning the environmental fate, biodegradation or bioconcentration for this product.

*** Section 13 - Disposal Considerations ***

US EPA Waste Numbers & Descriptions:

A: General Product Information

This product contains chromium which is a hazardous waste (D007).

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Material Safety Data Sheet

Material Name: ALODINE® 1000 LIQUID

ID: 234088

Disposal Instructions:

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Please refer to the container label for transportation information.

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Chromic acid (7738-94-5)

SARA 313: 0.1 % de minimis concentration (except for chromite ore mined in the Transvaal Region of South Africa and the unreacted ore component of the chromite ore processing residue (COPR).
Chemical Category N090) (related to Chromium (VI) compounds)

CERCLA: 10 lb final RQ; 4.54 kg final RQ

Zirconium fluoride compound (Proprietary)

CERCLA: 1000 lb final RQ; 454 kg final RQ

SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No Reactive: No

State Regulations

A: General Product Information

No additional information available.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Chromic acid (*related to Chromium compounds)	7738-94-5	Yes ¹	No	Yes	Yes	Yes	Yes
Zirconium fluoride compound (*related to Zirconium compounds)	Proprietary	Yes	No	Yes	Yes ¹	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

Other Regulations

A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Chromic acid	7738-94-5	Yes	Yes	Yes
Zirconium fluoride compound	Proprietary	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Material Safety Data Sheet

Material Name: ALODINE® 1000 LIQUID

ID: 234088

*** Section 16 - Other Information ***

NFPA Ratings: Health: 2 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

HMIS Ratings: Health: 2* Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

The information presented herein is believed to be factual as it has been derived from the works and opinions of persons believed to be qualified experts; however, nothing contained in this information is to be taken as a warranty or representation for which Henkel Surface Technologies bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.

Contact: Product Safety and Regulatory Affairs

Contact Phone: (248) 583-9300

This is the end of MSDS # 234088



MATERIAL SAFETY DATA SHEET

AND SAFE HANDLING AND DISPOSAL INFORMATION

ISSUE DATE: 1/10/2002	Product Name: AC-5	HAZ CLASS: CORROSIVE
SUPERSEDES: 03/30/95	PRODUCT TYPE: Deoxidizer	Page 1 of 3

SECTION I - EMERGENCY CONTACTS

ELDORADO CHEMICAL CO, INC. TELEPHONE: (210) 653-9323 8AM-5PM(CST)M-F
 14350 LOOKOUT ROAD NON-OFFICE HOURS: (800) 255-3924
 SAN ANTONIO, TX 78233 EMAIL: techsupport@eldoradochem.com

TRANSPORTATION AND CHEMICAL EMERGENCY: CHEMTTEL - 800-255-3924

SECTION II - HAZARDOUS INGREDIENTS

DESIGNATIONS	CAS NO	PEL (PPM)	TLV (PPM)	EFFECTS (SEE REVERSE)	% IN PRODUCT
Phosphoric Acid	7664-36-2	1mg/m ³	1mg/m ³		12%
Hydrofluoric acid	7664-39-3	3ppm	3ppm		3%

SECTION III - HEALTH HAZARD DATA

SPECIAL NOTE: MSDS data pertains to the product as dispensed from the container. Adverse health effects would not be expected under recommended conditions of use so long as prescribed safety precautions are practiced. See product bulletin for use instructions.

ACUTE EFFECTS OF OVEREXPOSURE:

This product in concentrated form is corrosive. Overexposure may lead to eye tissue damage which can be permanent. Skin contact may produce burns. Inhalation may produce upper respiratory irritation characterized by sore throat or difficulty breathing. Ingredients in this product may aggravate existing skin, eye, or respiratory disorders.

CHRONIC EFFECTS OF OVEREXPOSURE:

Repeated or prolonged skin contact may produce chronic inflammation or dermatitis, characterized by redness, scaling or itching. None of the ingredients are listed as carcinogens by IARC, NTP, or OSHA.

EST'D PEL/TLV: 8mg/m³

PRIMARY ROUTES OF ENTRY: Skin, eyes

HMIS CODES: HEALTH 3; FLAM.0; REACT.0; PERSONAL PROTECT.COR; CHRONIC HAZ. No

FIRST AID PROCEDURES:

SKIN : Flush contaminated skin with plenty of water. Consult a physician if irritation develops.
EYES : Immediately flush eyes with plenty of water for at least 15 minutes. Consult physician immediately.
INHALE: Move exposed person to fresh air. If irritation persists, get medical attention promptly.
INGEST: If this product is swallowed, do not induce vomiting. If victim is conscious give plenty of water to drink. Get medical attention at once.

SECTION IV - SPECIAL PROTECTION INFORMATION

PROTECTIVE CLOTHING : Rubber aprons, boots, and gloves. (Avoid all skin contact)
EYE PROTECTION : Wear tight-fitting safety glasses.
RESPIRATORY PROTECTION: Use of respirator is recommended during application due to mists formed during spray application.
VENTILATION : Ventilation should be equal to outdoors. Use exhaust fans and/or exhaust hood in enclosed spaces.

SECTION V - PHYSICAL DATA

BOILING POINT (F) : >210°F	PH (CONCENTRATE) : 2-3
SPECIFIC GRAVITY : 1	PH (USE DILUTION OF 1%) : 3-4
VAPOR PRESSURE (MMHG) : 3 mm	VOC CONTENT (CONCENTRATE) : 8g/L
EVAPORATION RATE (WATER-1) : 1	APPEARANCE AND ODOR : Viscous liquid, mild odor
VAPOR DENSITY (AIR=1) : 1	
SOLUBILITY IN WATER : Soluble	

MATERIAL SAFETY DATA SHEET

AND SAFE HANDLING AND DISPOSAL INFORMATION

ISSUE DATE: 1/10/2002	Product Name: AC-5	HAZ CLASS: CORROSIVE
SUPERSEDES: 03/30/95	PRODUCT TYPE: Deoxidizer	Page 2 of 3

SECTION VI - FIRE AND EXPLOSION DATA

FLASH POINT(F):None (TCC)
 FLAMMABLE LIMITS LEL: None UEL: None
 EXTINGUISHING MEDIA : Carbon dioxide, dry chemical, water fog, foam.
 SPECIAL FIRE FIGHTING: Wear self-contained positive pres. breathing apparatus.
 UNUSUAL FIRE HAZARDS : Fire exposed drums should be cooled with stream of water.

SECTION VII - REACTIVITY DATA

STABILITY : Stable
 INCOMPATIBILITY(AVOID) : Strong oxidizers.
 POLYMERIZATION : Will not occur.
 HAZARDOUS DECOMPOSITION: Carbon dioxide, carbon monoxide, and other unidentified organic compounds.

SECTION VIII - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
 Observe safety procedures in SECTION 4 & 9 during clean-up. Absorb spill on inert absorbent material. Pick up and place residue in a suitable waste container. Thoroughly rinse spill area with water.

WASTE DISPOSAL METHOD:

Liquid wastes are not permitted in landfills. This product is considered a hazardous waste under RCRA. Unusable liquid may be absorbed on an inert absorbent material, drummed, and taken to a chemical or industrial landfill. Consult local, state, and federal agencies for proper disposal method in your area.

RCRA HAZ. WASTE NOS.: D002

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN WHEN HANDLING AND STORING:

Corrosive to skin and eyes.
 Avoid contact with skin and eyes with protective clothing.
 Keep away from food and food products.
 Keep out of the reach of children.

SECTION X - REGULATORY INFORMATION

DOT PROPER SHIP NAME: Corrosive liquid, N.O.S. (Phosphoric Acid), 8
 NOTE: DOT information applies to larger package sizes of affected products. For some products, DOT may require alternate names and labeling in accordance with packaging group requirements.

DOT HAZARD CLASS: Corrosive DOT PACKING GROUP: III
 DOT I.D. NUMBER : UN 1760 DOT LABEL/PLACARD: Corrosive
 EPA TSCA CHEMICAL INVENTORY - ALL INGREDIENTS ARE LISTED
 EPA CWA 40CFR PART 117 SUBSTANCE(RO IN A SINGLE CONTAINER): 40,000 lbs

MATERIAL SAFETY DATA SHEET

AND SAFE HANDLING AND DISPOSAL INFORMATION

ISSUE DATE: 1/10/2002
SUPERSEDES: 03/30/95

Product Name: AC-5
PRODUCT TYPE: Decidizer

HAZ CLASS: CORROSIVE

Page 3 of 3

NOTICE

Thank you for your interest in and use of Eldorado products. We are pleased to be of service to you by supplying this Material Safety Data Sheet for your files. Eldorado is concerned for your health and safety. Our products can be used safely with proper protective equipment and with proper handling practices consistent with label instructions and the MSDS. Before using any product, be sure to read the complete label and the Material Safety Data Sheet.

As a further word of caution, Eldorado advises that serious accidents have resulted from the misuse of "emptied" containers which can retain residue (liquid and/or vapor) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, or other sources of ignition; they may explode or develop harmful vapors and possibly cause injury or death. Clean empty containers by triple rinsing with water or an appropriate solvent. Empty containers must be sent to a drum reconditioner before reuse.

TERMS AND ABBREVIATIONS

Listed Alphabetically By Section

SECTION II: HAZARDOUS INGREDIENTS

CAR: Carcinogen - A chemical listed by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC) or OSHA as a definite or possible human cancer causing agent.

CAS#: Chemical Abstract Services Registry Number - A universally accepted numbering system for chemical substances.

CL: Combustible - At temperatures between 100°F and 200°F chemical gives off enough vapor to ignite if a source of ignition is present as tested with a closed cup tester.

CNS: Central Nervous System depressant which reduces the activity of the brain and spinal cord.

COR: Corrosive - Causes irreversible injury to living tissue (e.g. burns).

DESIGNATIONS: Chemical and common names of hazardous ingredients.

EIR: Eye Irritant Only - Causes reversible reddening and/or inflammation of eye tissues.

EXPOSURE LIMITS: The time weighted average (TWA) airborne concentration at which most workers can be exposed without any expected adverse effects. Primary sources include ACGIH TLVs, and OSHA PELs.

ACGIH: American Conference of Governmental Industrial Hygienists

CEILING: "The concentration that should not be exceeded in the workplace during any part of the working exposure." Source, ACGIH

OSHA: Occupational Safety and Health Administration.

PEL: Permissible Exposure Limit - A set of time weighted average exposure values, established by OSHA, for a normal 8-hour day and a 40-hour work week.

PPM: Parts per million - unit of measure for exposure limits.

(S) SKIN: Skin contact with substance can contribute to overall exposure.

STEL: Short Term Exposure Limit - Maximum concentration for a continuous 15-minute exposure period.

TLV: Threshold Limit Value - A set of time weighted average exposure limits, established by the ACGIH, for a normal 8-hour day and a 40-hour work week.

FBL: Flammable - At temperatures under 100°F, chemical gives off enough vapor to ignite if a source of ignition is present as tested with a closed cup tester.

HAZARDOUS INGREDIENTS: Chemical substances determined to be potential health or physical hazards based on the criteria established in the OSHA Hazard Communication Standard - 29 CFR 1910.200

HTX: Highly toxic - the probable lethal dose for a 70 kg (150 lb.) man, which may be approximated as less than 6 teaspoons (2 tablespoons)

IRR: Irritant - Causes reversible effects in living tissues (e.g. inflammation) - primarily to skin and eyes.

N/A: Not Applicable - Category is not appropriate for this product.

N/D: Not Determined - Insufficient information to make a determination for this item.

RTECS#: Registry of Toxic Effects of Chemical Substances - an unreviewed listing of published toxicology data on chemical substances.

SARA: Superfund Amendment and Reauthorization Act - Section 313 designates certain chemicals for possible reporting for the Toxic Chemical Release Inventory.

SEN: Sensitizer - Causes allergic reaction after repeated exposure.

TOX: Toxic - The probable lethal dose for a 70 kg (150 kg) man is one ounce (2 tablespoons) or more.

SECTION III: HEALTH HAZARD DATA

ACUTE EFFECT: An adverse effect on the human body from a single exposure with symptoms developing almost immediately after exposure or within a relatively short time.

CHRONIC EFFECT: Adverse effects that are most likely to occur from repeated exposure over a long period of time.

EST'D PEL/TLV: This estimated, time-weighted-average, exposure limit, developed by using a formula provided by the ACGIH, pertains to air borne concentrations from the product as a whole. This value would serve as guide for providing safe workplace conditions to nearly all workers.

HMS CODES: Hazardous Material Identification System - a rating system developed by the National Paint and Coating Association for estimating the hazard potential of a chemical under normal workplace conditions. These risk estimates are indicated by a numerical rating given in each of three hazard areas (Health/Flammability/Reactivity) ranging from a low of zero to a high of 4. The presence of a chronic hazard is indicated by a "YES". Consult HMIS training guides for Personal Protection letter codes which indicate necessary protective equipment.

PRIMARY ROUTE OF ENTRY: The way one or more hazardous ingredients may enter the body and cause a generalized-systemic or specific-organ toxic effect.

ING: Ingestion - A primary route of exposure through swallowing of material.

INH: Inhalation - A primary route of exposure through breathing of vapors.

SKIN: A primary route of exposure through contact with the skin.

SECTION IV: SPECIAL PROTECTION INFORMATION

Where respiratory protection is recommended, use only MSHA and NIOSH approved respirators and dust masks.

MSHA: Mine Safety and Health Administration

NIOSH: National Institute for Occupational Safety and Health.

SECTION V: PHYSICAL DATA

EVAPORATION RATE: Refers to the rate of change from the liquid state to the vapor state at ambient temperature and pressure in comparison to a given substance (e.g. water).

pH: A value representing the acidity or alkalinity of an aqueous solution (Highly Acidic pH = 1; Neutral pH = 7, Highly Alkaline pH = 14)

VOC CONTENT: The percentage or amount in pounds per gallon of the product that is regulated as a Volatile Organic Compound under the Clean Air Act of 1990 and various state jurisdictions.

SOLUBILITY IN WATER: A description of the ability of the product to dissolve in water.

SECTION VII: REACTIVITY DATA

HAZARDOUS DECOMPOSITION: Breakdown products expected to be produced upon product decomposition by extreme heat or fire.

INCOMPATIBILITY: Keep product away from listed substances or conditions to prevent hazardous reactions.

POLYMERIZATION: Indicates the tendency of the product's molecules to combine with themselves in a chemical reaction releasing excess pressure and heat.

STABILITY: Indicates the susceptibility of the product to spontaneously and dangerously decompose.

SECTION VIII: SPILL AND DISPOSAL PROCEDURES

RCRA WASTE NOS: RCRA (Resource Conservation and Recovery Act) waste codes (40 CFR 261) applicable to the disposal of spilled or unusable product from the original container.

SECTION X: TRANSPORTATION DATA

CWA: Clean Water Act - Federal law which regulates chemical releases to bodies of water.

RQ: Reportable Quantity - The amount of the specific ingredient that, when spilled to the ground and, can enter a storm sewer or natural watershed, must be reported to the National Response Center, and other regulatory agencies.

TSCA: Toxic Substances Control Act - A federal law requiring all commercial chemical substances to appear on an inventory maintained by the EPA.

DISCLAIMER

All statements, technical information and recommendations contained herein are based on available scientific tests or data which we believe to be reliable. The accuracy and completeness of such data are not warranted or guaranteed. We cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used. Eldorado Chemical Co., Inc. assumes no liability or responsibility for loss or damage resulting from the improper use or handling of our products, from incompatible product combinations, or from the failure to follow instructions, warnings, and advisories in the product label and Material Safety Data Sheet.

Letters & Memorandums from EPA

SECTION VIII



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

MAR 2 2005

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Ms. Laura E. Roberts
Chairman and Chief Executive Officer
Pantheon Chemical
22601 N. 19th Avenue, Ste.139
Phoenix, Arizona 85027-1325

Dear Ms. Roberts:

The U.S. Environmental Protection Agency applauds Pantheon Chemical ("Pantheon") for your environmental leadership in developing *PreKote*®, a non-chromate surface pretreatment formulation. EPA's Design for the Environment ("DfE") program seeks to promote the use of industrial coatings with improved environmental and human health characteristics. Your *PreKote*® product achieves that objective in the industrial/conversion coating sector.

The key purpose of the DfE-Pantheon partnership is to recognize the environmentally preferable chemistry of *PreKote*® and to encourage the development of similar chemistries. DfE is very enthusiastic about your successful formulation of *PreKote*® and about our partnership, the first in the conversion coating sector. By designing a formula that eliminates chromic acid, alkaline cleaners, and acid brighteners, you have demonstrated your active environmental stewardship, concern for worker health, and dedication to continuous improvement.

Manufacturers in the aerospace, military, and marine sectors and others who use *PreKote*® will be participants in this important national effort to protect the environment and safeguard human health. I commend Pantheon for your commitment to improving the environmental profile and performance of your products—and for leading change in the surface pretreatment and paint industries—much success with *PreKote*®!



Sincerely,

A handwritten signature in black ink that reads "Clive Davies".

Clive Davies, Chief
Design for the Environment

Internet Address (URL) • <http://www.epa.gov>

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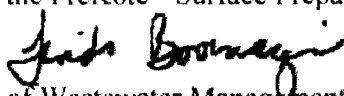
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

APR 1 2003

Memorandum

Subject: Regulatory Determination for the PreKote™ Surface Preparation Process

From: Linda Y. Boornazian, Director 
Water Permits Division, Office of Wastewater Management

Mary T. Smith, Director 
Engineering and Analysis Division, Office of Science and Technology

To: Water Division Directors, Regions 1-10

Overview

The United States Air Force (USAF) has requested clarification from EPA on the Metal Finishing effluent guidelines (40 CFR 433) and whether these technology-based limitations and standards apply to a particular metal surface painting preparation operation. The USAF is replacing the chemical Alodine with a chemical marketed as "PreKote"¹ and a liquid epoxy primer in a preparatory operation conducted on aircraft aluminum surfaces prior to painting. The use of Alodine is regulated as a chemical conversion coating process under the Metal Finishing effluent guidelines and is considered a "core" operation.² The USAF requests clarification on whether the use of PreKote as a metal surface painting preparation operation is regulated as a core operation by the Metal Finishing effluent guidelines. This document is intended to discuss and clarify EPA's position on the applicability of the Metal Finishing effluent guidelines with respect to the PreKote metal surface painting preparation operation.

¹PreKote™ is manufactured by Pantheon Chemical, 225 West Deer Valley Road, Suite 4, Phoenix, Arizona 85027.

²There are six "core" metal finishing operations (*i.e.*, Electroplating, Electroless Plating, Anodizing, Coating (chromating, phosphating, and coloring), Chemical Etching and Milling, and Printed Circuit Board Manufacture) and forty "ancillary" process operations listed at 40 CFR part 433.10(a).

Background

In the late 1990s the USAF began investigating alternatives to chromate conversion coatings (commonly called Alodine) used for painting anodized aluminum aircraft skins. Chromate conversion coatings help prepare aluminum for the application of paint and they also provide a corrosion preventative barrier. In aircraft paint systems, chromate conversion coatings are used in conjunction with modern epoxy primers that also contain chromate to guard against corrosion. EPA notes that conventional acid-based conversion coatings chemically react with the metal oxide and form a new material on the surface. The new surface layer becomes part of the metal and cannot be easily removed as measured by military 168-hour salt spray corrosion test on unpainted metal panels (ASTM B117, MIL-C-5541). The primers are topped with a layer of polyurethane paint.

The USAF conducted a series of investigations and field studies to evaluate a number of non-chromate metal surface painting preparation treatments. Recently the USAF authorized the use of PreKote as an alternative to chromate conversion coatings for painting T-1, T-37, T-38, and F-16 aircraft.³ There are now approximately 16 Air Force bases (AFB) that are allowed the use of PreKote on selected aircraft. At least two USAF bases, Sheppard Air Force (Texas) and Columbus Air Force (Mississippi) are currently replacing the use of Alodine with PreKote. The USAF is expected to expand the use of this alternative surface preparation process for aluminum, magnesium, and composite surfaces in order to minimize the discharge and worker exposure of chromate-containing materials (such as Alodine) and reduce time and effort associated with aircraft painting.

The PreKote formulation is a non-chromic alkali soap with a saline adhesion promoter and inorganic inhibitor package. The PreKote application cleans the surface and deposits a very thin layer of adhesion-promoting organic molecules on the surface of the substrate. This layer is extremely attracted to coatings. In addition, PreKote provides a polar/non-polar molecule that attaches itself to permanently imbedded contamination which also attracts coatings.

The PreKote manufacturer, Pantheon Chemical, recommends that PreKote-treated surfaces be painted within 24 hours of application as the thin layer of adhesion-promoting organic molecules are easily removed. PreKote-treated surfaces cannot pass the previously mentioned military 168-hour salt spray corrosion test and the thin layer of adhesion-promoting organic molecules are easily removed by rinsing with water. Pantheon Chemical also states that PreKote can be used on many non-metallic surfaces including fiberglass and Kevlar surfaces.

³E-mail from Dennis Kirsch, Randolph AFB, to Lee Bohme, EPA Region 6 Pretreatment Coordinator, January 7, 2003.

Review of Data and Information

EPA reviewed a number of sources of information to determine the applicability of the Metal Finishing effluent guidelines with respect to the PreKote metal surface painting preparation operation. These sources are attached to this memo and include:

- PreKote Material Safety Data Sheet (MSDS);
- Pantheon Chemical vendor literature;
- Memorandum from Mr. Lee Bohme, EPA Region 6 Pretreatment Coordinator;
- Technology report on candidate non-chromate conversion coatings from Ogden Air Logistics Center, Science and Engineering Laboratory;
- Material testing data from Scientific Material International, Inc.;
- Leaching and material testing data from Pantheon Chemical; and
- Wastewater sampling data from Columbus AFB and Sheppard AFB.

The MSDS indicates that PreKote is a water-based, biodegradable, non-toxic, non-hazardous, non-flammable, non-corrosive and stable formulation with a pH range from 10.8 to 11.2. The MSDS also lists the health hazards from exposure to PreKote as slight and the flammability, reactivity, and contact hazards as insignificant. The ingredient N-Methylpyrrolidone (NMP), 3%, CAS No. 872-50-4; is contained in the formulation and is subject to reporting requirements under SARA Title III Section 313 Part 372. All ingredients used are on the TSCA Inventory.

Mr. Lee Bohme, EPA Region 6 Pretreatment Coordinator, observed the PreKote application process at the Sheppard AFB.⁴ Mr. Bohme observed that PreKote is applied with a pump-up sprayer (garden type) to the entire exterior of the aircraft. While still wet, the PreKote is scrubbed on the surface with abrasive pads (180 grit scrub pads which are similar to large kitchen or household pads) to evenly distribute the PreKote solution and to "work it into the pores." The entire surface is then washed with water before it dries. This process is repeated two more times per aircraft. At the Sheppard AFB approximately 300 gallons of process wastewater per aircraft is generated from these three washings of the PreKote applications. The Columbus AFB also reports similar process wastewater generation for the T1-A aircraft with 12 gallons of PreKote applied during each application followed by a rinse of 100 gallons of water.⁵ Mr. Bohme reported that the PreKote process reduces the required amount of polyurethane paint and generates about half of the amount of wastewater as compared to the wastewater generated by the Alodine system.

⁴Bohme, Lee, U.S. EPA Region 6. "PreKote," Memorandum to EPA Regional Pretreatment Coordinators, March 19, 2003.

⁵Mundrick, Douglas, U.S. EPA Region 4. Memorandum to Deborah Nagle, U.S. EPA Office of Wastewater Management, February 11, 2003.

Sheppard AFB's painting operations (including application of the strontium chromate primer) are dry. All overspray is captured by air filters and disposed as hazardous waste.⁶ Sherwin Williams, a vendor of the strontium chromate primer (MIL-PRF-23377) confirms that there is no chemical reaction between the substrate (aluminum) and the strontium chromate primer.⁷ Deft Finishes, Inc., another vendor, concurs, stating that chromates contained in aircraft primers may react with the painted metal surface to inhibit galvanic corrosion resulting from "in service" damage from scratching or abrasion that would allow moisture intrusion, but not during primer application and curing (drying).⁸

A thorough investigation of PreKote is detailed in a USAF technical report from Ogden Air Logistics Center, Science and Engineering Laboratory.⁹ This report details a study of four candidate substitutes for chromate conversion coatings (e.g., Alodine). Laboratory testing included Electron Spectroscopy for Chemical Analysis (ESCA) to identify surface changes in the substrate brought on by the non-chromate metal surface painting preparation operations. The study also evaluated the potential for each treatment to eliminate or reduce pollution. Laboratory testing eliminated three of the four products based on unacceptable technical performances. The fourth candidate, PreKote, was tested extensively in the laboratory and in field studies for its technical properties as a substitute for chromate conversion coatings.

The study identified that PreKote technically performed equal or better than chromate conversion coatings and eliminated or reduced a major source of pollution and hazardous waste associated with aircraft painting. The study identified that the PreKote process could eliminate the solvent wipe down, acid brightener, and sand anodizing process used in conventional paint preparation procedures. ESCA testing identified that PreKote left a molecularly thin coating on the surface which promoted adhesion of the primer coating but did not chemically alter the substrate. The PreKote process was identified as an excellent potential to save time and money in painting aircraft. The study recommends expanded use of PreKote to save time and money and improve occupational health and environmental protection.

Laboratory test results from Scientific Material International, Inc., a laboratory independent of the PreKote vendor, and the PreKote vendor, Pantheon Chemical, also confirm that the PreKote process does not chemically convert, react with the metal substrate, or leach metals from the substrate. A number of substrates were tested including: clad or bare aluminum;

⁶McBurnett, Mark, Sheppard AFB. Letter to Lee Bohme, U.S. EPA Region 6, March 7, 2003.

⁷Wytiaz, Mark, Sherman Williams Chemical Coatings. Letter to Dennis Kirsch, Randolph AFB, December 3, 2002.

⁸Ray, Charles, Deft Finishes. Letter to Dennis Kirsch, Randolph AFB, December 11, 2002.

⁹Buchi, Richard H., Ken Patterson, Clyde J. Gowers, 1998. "Non-Chromate Conversion Coating," USAF Ogden Air Logistics Center, Science and Engineering; Laboratory.

magnesium; bare low alloy steel; cadmium plated steel; titanium; nickel-based alloy; a ferrous alloy; and a stainless steel alloy. These results across a wide variety of substrates identify no leaching of metals from the substrate, intergranular attack or end grain pitting.

In order to better understand the potential pollution prevention aspects of PreKote, EPA also reviewed wastewater sampling data from Columbus AFB and Sheppard AFB (see attachments). These results confirm significant reductions in chromium and other metals regulated by the Metal Finishing effluent guidelines. Concentrations of metals in PreKote process wastewater is either non-detect or significantly below the Metal Finishing new source pretreatment standards (40 CFR 433.17) which are the most stringent standards for this point source category.

EPA Conclusions

EPA finds that the use of PreKote is not one of the six core Metal Finishing effluent guidelines operations (see 40 CFR part 433.10(a)) and use of PreKote does not automatically trigger categorical industrial user (CIU) status under the Metal Finishing effluent guidelines. PreKote is a non-chromating application that does not chemically convert, react with the metal substrate, or leach metals from the substrate. Facilities engaged in metal finishing operations should consult the applicability section of the Metal Finishing effluent guidelines to determine whether other operations trigger CIU status.

Based on the available chemical information, PreKote is a non-chromic, non-hazardous and non-toxic alternative to chromate conversion coatings for metal surface painting preparation operations. PreKote reduces worker exposure to solvents and other toxic chemicals traditionally used in the painting operation. PreKote is a pollution prevention technology as it reduces the generation of metal surface painting preparation wastewater and the amount of pollutants in that wastewater. PreKote may provide facilities a suitable alternative to chromate conversion coatings for metal surface painting preparation operations.

Questions on this memorandum should be directed to Ms. Jan Pickrel, U.S. EPA, Office of Wastewater Management, or Mr. Carey A. Johnston, P.E., U.S. EPA, Office of Science and Technology: (202) 564 7904, and (202) 566 1014, respectively.

Attachments

- PreKote Material Safety Data Sheet (MSDS)
 - Pantheon Chemical vendor literature
 - Memorandum from Lee Bohme, EPA Region 6 Pretreatment Coordinator, to EPA Regional Pretreatment Coordinators, March 19, 2003.
 - Technology report from Ogden Air Logistics Center, Science and Engineering Laboratory, on PreKote, April 3, 1998.
 - Wastewater sampling data from Columbus AFB and Sheppard AFB
 - Material testing data from Scientific Material International, Inc.
 - Leaching and material testing data from Pantheon Chemical
 - Memorandum from Lee Bohme, EPA Region 6 Pretreatment Coordinator, to EPA Regional Pretreatment Coordinators, January 14, 2003.
 - Memorandum from Douglas F. Mundrick, P.E., EPA Region 4 Water Programs Enforcement Branch, to Deborah Nagle, Office of Wastewater Management, Industrial Branch, February 11, 2003.
 - Letter from Charles Ray, Deft Finishes, to Dennis Kirsch, Randolph AFB, December 11, 2002.
 - Letter from Mark Wytiaz, Sherman Williams Chemical Coatings, to Dennis Kirsch, Randolph AFB, December 3, 2002.
 - E-mail from Dennis Kirsch, Randolph AFB, to Lee Bohme, EPA Region 6 Pretreatment Coordinator, January 7, 2003.
- Cc: Deborah G. Nagle, OWM-Water Permits Division
Jen Maria Pickrel, OWM-Water Permits Division
Marvin B. Rubin, OST-Engineering & Analysis Division
Carey A. Johnston - OST-Engineering & Analysis Division

EPA and Government Awards for Prekote Transitions



<http://www.epa.gov/osw/partnerships/npep/success/sheppard.htm>

Last updated on Tuesday, September 23rd, 2008.

Wastes - Partnerships - National Partnership for Environmental Priorities (NPEP)

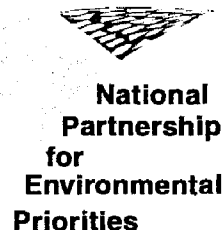
You are here: [EPA Home](#) [Wastes](#) [Partnerships](#) [National Partnership for Environmental Priorities](#) [Success Stories](#) Sheppard Air Force Base

NPEP Success Story: Sheppard Air Force Base

Sheppard Air Force Base Reduces Costs \$36,000 Annually Through Product Substitution

Sheppard Air Force Base, Texas, opened in 1941 as an Army Air Corps installation. It currently consists of two separate "Training Wings", the 82nd Training Wing and the 80th Flying Training Wing, with a population (work force and students) of approximately 28,000. The 80th Flying Training Wing conducts the EURO-NATO Joint Jet Pilot Training (ENJJPT) program sponsored by 13 NATO countries. ENJJPT maintains 92 T-37 and 118 T-38 and AT-38 aircraft in support of this mission.

Repainting of these aircraft required application of an acid alodine coating to enable surface coating adherence. This process produced approximately 142,000 pounds of hazardous waste annually.



Sheppard's NPEP Goal

Sheppard AFB proposed this pollution prevention/waste reduction through product substitution. An Air Force technical order (TO) required the use of acid alodine as a bonding agent during aircraft painting operations. Alodine is a hazardous material resulting in hazardous waste, which must be properly managed and disposed of. Following the application of acid alodine to the aircraft surface, several gallons of hazardous wastewater were generated through the required rinsing process. This process necessitated collection of hazardous waste into drums, labeling, handling, storing, and proper disposal.



EPA officials present an NPEP Achievement Award to Mark McBurnett (left) and Richard Milhollen (right) of Sheppard Air Force Base on October 25, 2005.

The partnership goal set was to reduce/eliminate hazardous waste/hazardous material use through product substitution. Through cooperative efforts of Air Force, EPA, Texas Commission on Environmental Quality (TCEQ), and the Wichita Falls/Wichita County Public Health Department, a resolution was reached changing the technical order to permit use of a non-hazardous material product, PreKote. PreKote is a non-chromium, non-hazardous, and non-toxic alternative to alodine. Sheppard AFB purchased an electro-coagulation unit for pretreatment of the rinsate prior to discharge as a non-hazardous wastewater.

NPEP Project Implementation

The United States Air Force has a well established and strictly maintained system of aircraft design, operations, and maintenance procedures. Each aircraft has a specific set of Technical Orders (TOs) which govern both the materials and products used within each maintenance operation. These particular aircraft are governed by the Systems Program Office located at the Odgen Air Logistics Center at Hill Air Force Base, Utah. Sheppard AFB personnel were

aware of some preliminary testing that had been accomplished at other installations indicating the product PreKote provided acceptable performance results but could not be used due to the TO restrictions.

The alternative selected by Sheppard was to initiate the product change process through Air Force channels to have the technical order revised, thus permitting the process change at the maintenance levels. The other alternative was to continue utilizing the acid alodine process and manage the resulting hazardous waste. No other acceptable alternatives were found, thus Sheppard AFB environmental and maintenance personnel proceeded to initiate the product substitution process by seeking to have the technical order changed. Additionally, if Sheppard AFB elected to utilize the acid alodine process, they were considered to be "metal finishers" in accordance with the Clean Water Act and require permitting as a "categorical industrial user." In April 2003, HQ EPA Director of Water Permits Division issued a memo to EPA Regions 1-10 which concluded "EPA finds the use of PreKote is not one of the six core metal finishing effluent guidelines operations and PreKote does not automatically trigger categorical industrial use status under the metal finishing effluent guidelines."

Hurdles Faced

As previously noted, several hurdles were encountered. First and foremost was the task of changing the Air Force Technical Order requiring the use of acid alodine which contained hexavalent chromium. Changing this TO required the cooperative efforts of several Air Force agencies and was accomplished with Odgen Air Logistics Center's change to the TO on 18 November 2002. The second hurdle was the fact that the rinsate from the new process utilizing PreKote contained trace levels of metals. This was resolved with the purchase and installation of an electro-coagulation unit which yields a non-hazardous waste water discharge.

Waste Minimization Results

Prior to this waste minimization/product substitution initiative, Sheppard AFB generated approximately 142,000 lbs/17,000 gallons of hazardous waste from the acid alodine rinse operations in aircraft depainting/paint operations. Cost for disposal was approximately \$40K annually. Additionally, the purchase, delivery, handling, mixing, and hazardous material tracking and reporting of a hazardous material has been eliminated. Likewise, the collection, drumming, storage, labeling and managing, and the disposal of a substantial hazardous waste has been eliminated. The possibility of employee exposure to and the risk of potential releases/spills of both the hazardous material and the resulting hazardous waste were eliminated. Although this process required the one-time purchase and installation of the electro-coagulation unit (\$27K), and the annual increase in material cost of \$380, the annual operational cost is reduced by \$36,283, thus equating to a 0.7-year payback. The reduced risk to human health and the environment and the cost reduction in sampling/analysis as a categorical industrial user is immeasurable.

Upon successful implementation of this initiative, HQ AETC directed all their installations to implement this pollution prevention initiative. Other installations have visited Sheppard AFB to implement this same process on other aircraft within the Air Force inventory. This success has been publicized throughout the Air Force and has implementation capabilities throughout the Department of Defense.

Lessons Learned

The greatest lesson learned through this entire process was the necessity of cooperative efforts at many levels throughout several agencies. The EPA (HQ-Washington, Regions 4 and 6), Texas Commission on Environmental Quality, Air Force Center for Environmental Excellence Regional Office-Dallas, the PreKote manufacturer, System Program Office (Hill

AFB), and Wichita Falls/Wichita County Public Health Department were all vital links in achieving success.



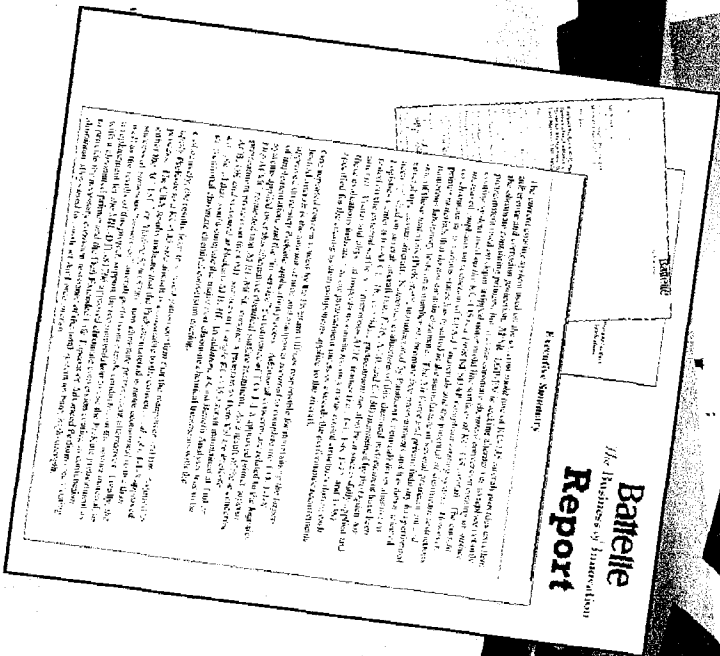
PANTHEON CHEMICAL
The Business of Innovation



Battelle

The Business of Innovation

Report



US Military-contracted study of all major pretreatments

Prekote achieved best overall results in terms of economic impact, time savings, health & safety, and performance.

PreKote®

Surface Pretreatment



EPA ENVIRONMENTAL ACHIEVEMENT AWARD

The Science and Engineering Laboratories at Hill Air Force Base in Ogden, Utah were awarded this prestigious EPA award for their exceptional contribution to the protection of human health and the environment.

Senior Materials Engineer, Richard Buchi, and his team received this award for their efforts in eliminating chromated conversions coatings in their aircraft painting operations by using PreKote® Surface Pretreatment, a technology by Pantheon Chemical®.



Glen Baker, Process Engineer, Hill Air Force Base, Colonel William McCasland, Vice-Commander, Hill Air Force Base, Wayne Patterson, Senior Materials Engineer, Dick Buchi, Senior Materials Engineer, Hill Air Force Base, Robbie Roberts, Region 8 Administrator, EPA, Utah Governor Olene Walker, Craig Shaw, Pollution Prevention Manager, Hill Air Force Base, Laura Roberts, Chief Executive Officer, Pantheon Chemical, Dianne Nielson, Executive Director, Utah Department of Environmental Quality, and Colonel Kyle MacDonald, Senior IMA MA Directorate, Hill Air Force Base.

HILL AFB TO RECEIVE EPA ENVIRONMENTAL AWARD IN CEREMONY AT THE UTAH STATE CAPITOL BUILDING ON WEDNESDAY, AUGUST 11, 2004

Ogden, Utah (August 2, 2004) Dick Buchi, Senior Materials Engineer at Hill Air Force Base, and his team will be honored with the prestigious EPA Regional Administrator's Environmental Award for Excellence on Wednesday, August 11th at 10:30 a.m. in the Utah State Capitol building courtyard. The award recognizes Hill's contributions to improve worker safety, state water quality and community health by eliminating hexavalent chromium, an extremely toxic carcinogen, from their aircraft pre-paint operations.

For decades, the aerospace industry could not find a safe replacement for hexavalent chromium. Hill Air Force Base led the way with out-of-box thinking and an eye toward breakthrough results rather than mere compliance in process. Eight years of exhaustive testing led them to move forward with an innovative, environmentally-safe technology called PreKote®. Beyond Hill AFB, the U.S. Air Force is nearing service-wide elimination of hexavalent chromium, a success attributed to the forward thinking team at Hill Air Force Base.

The deployment of PreKote® technology produced documented savings of \$6,000 per F-16 aircraft painted and a total of close to \$1.3MM in operation savings at Hill Air Force Base alone. These savings maintained employment, lowered potential health care costs and insulated the base from base realignment and closure vulnerability. Corresponding savings on the newly implemented A-10 and C-130 aircrafts at Hill Air Force Base could exceed \$4MM per year. In addition, upwards of 500,000 gallons of wastewater per year were eliminated. "Hill's innovative approach to this tough problem is a great example of forward thinking and proactivity in our state," says Utah Governor Olene Walker. "It is important for citizens to be well represented and served and this technology does exactly that."

Dick Buchi's results-focused approach addressed environmental concerns without sacrificing performance and protection of our nation's assets -- highlighting the potential of the Enlibra Doctrine, an approach to environmental stewardship and an initiative to effectively change the way Utah government works championed by EPA Administrator (and former Utah Governor) Mike Leavitt.



State of Utah Governor, Olene Walker, opens the ceremonies at the capitol building.



Proposed SEP Impact and Costs

PROPOSED SEP IMPACT AND COSTS

The Sep currently proposed will eliminate the use of Hexavalent chrome and hydrofluoric acids in the conversion coating process at the Leading Edge Facility.

This transformation will positively impact the environment, the public, worker safety, and greatly reduce the generation of hazardous waste, and RCRA chromated water while also reducing VOC's in the painting process.

Verified and consistent aircraft processing numbers established of years of production have been used to develop the impact. Included FAA required Work Order Log as verification of aircraft numbers. "Additional details are included in the package provided"

Results in the acceptance of this SEP are as follows:

- 1. Reduction in the generation of RCRA classified water in the amount of approximately 70 thousand gallons a year.**
- 2. The elimination of Hexavalent Chromes in the conversion coating process**
- 3. The elimination of Hydrofluoric Acids in our process**
- 4. Elimination of Alodine in our process**

Cost savings by making this transition:

- | | |
|-------------------------------------------|-------------|
| 1. Alodine = 26 drums | \$5158.92 |
| 2. Hydrofluoric Acid = 29 drums | \$12,646.90 |
| 3. Hazardous Waste water = 70,000gals | \$47,600.00 |
| Total savings = \$65,405.82 a year | |

Cost to convert operations to PreKote process:

1. Prekote drum cost = \$1300.00
2. 3 drums per aircraft = \$3900.00
3. Minimum aircraft = 65

Total cost to transfer to PreKote = \$253,500.00

Net impact of increase cost of \$188,094.18

Victorville facility is capable of completing over 120 aircraft a year with current hangars. 78 aircraft were completed in 2007. Total for 2008 will be approximately 63 aircraft. 2009 has booking for over 80 aircraft.