TEST REPORT

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The final review and approval of this document before its release to the client are the joint responsibilities of the following personnel at Technical Safety Services. In signing this cover sheet, these individuals acknowledge the accuracy of the data and activities reported herein:

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President

Martin Burke _____ date: 3/12/07
Manager, Engineering

2 Purpose:

The purpose of this report is to document the results of exposing material samples supplied by Arcoplast to typical, large-scale disinfecting conditions using chlorine dioxide [ClO2] gas.

3 Summary:

3.1 On February 27, 2007, technicians from Technical Safety Services [TSS] exposed eight (8) sample coupons of Arcoplast composite ceiling and wall panels, and one (1) piece of Neoprene gasket material mounted in an extruded aluminum channel to a sterilizing atmosphere of chlorine dioxide gas [ClO2] within a TSS decontamination chamber. The coupons were supplied with the Arcoplast Antimicrobial surface gel coat, and a this project visually examined the exposed materials for any obvious effects or damage to the surfaces

3.2 One (1) exposure-run was conducted to evaluate any visible effects on the surfaces of the samples. The exposure lasted approximately sixteen (16) hours.

3.3 After exposure, the samples were visually examined to determine whether or not the chlorine dioxide gas caused any obvious damage. Visual inspection of the surfaces, along with a side-by-side comparison of the exposed coupons with four (4) similarly-sized control coupons, was done to check for differences in color, reflectivity, contrast, and roughness. There was no control sample for the Neoprene gasket material, which was evaluated for visible damage and gross changes in physical characteristics (friability and elasticity).

3.4 The exposure of the samples to the chlorine dioxide gas caused no visible effect or damage to the surfaces of the coupons; neither the surface gel coat nor the finishing material was visibly affected. The sample of Neoprene gasket material was also unaffected; it did not shed/slough material in an ad-hoc smear test nor was its elasticity notably affected.

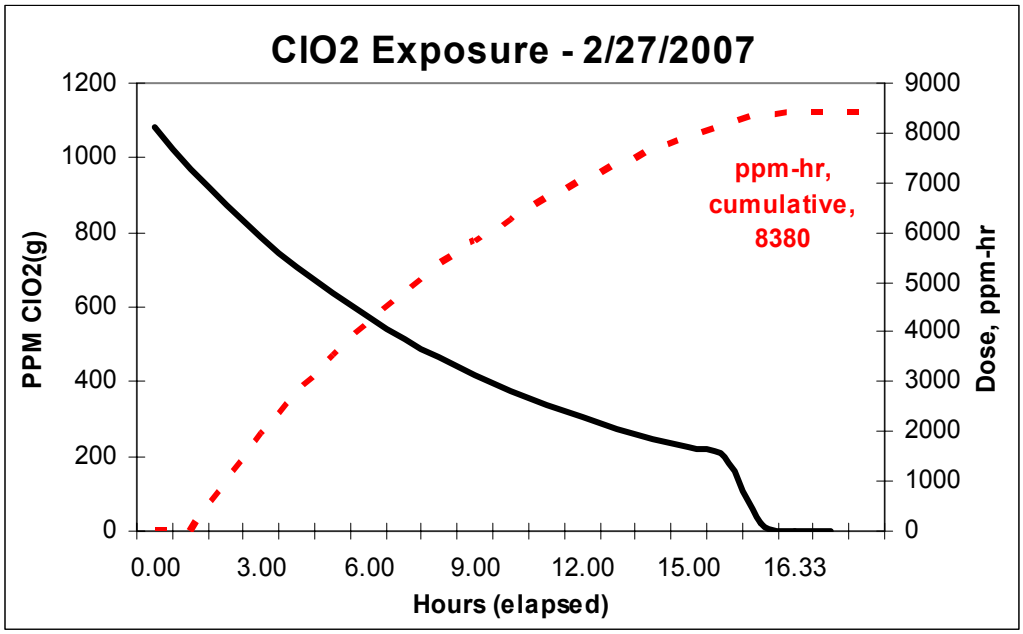
3.5 Pertinent execution notes are discussed in section 4. Photographs of the samples before testing and after the exposure-run appear in section 5 of this report. Section 6 contains pertinent additional documents used to support the validity of this report.

4 Data and Pertinent Execution Notes:

4.1 Test Procedure:

Testing was performed in a ~100 ft^3 decontamination chamber. The samples were placed on an open stainless steel shelve to assure adequate surface exposure.

A concentration of approximately 1,000 ppm chlorine dioxide gas was initially generated within the chamber and allowed to vent slowly to the atmosphere through carbon filtration. The cumulative dose to the samples was ~8,380 ppm-hr. Sterilization is typically achieved with doses as low as ~1,000 ppm-hr, so the exposure used in this study is aggressive and may represent the total effects of several, typical exposures. The chamber was maintained at a temperature between 18º-20º C and a relative humidity of >70%. The following chart tracks the calculated exposure data:



Each of the samples was visually inspected and photographed before and after the chlorine dioxide gas exposure run. Photographs were also taken to visually compare each exposed coupon with a control coupon of the same type, size and shape. See section 5 for the photographs.

4.2 Test Results:

None of the material samples showed any obvious visible damage – no pitting streaking or discoloration - after exposure to sterilizing concentrations of chlorine dioxide gas. When visually inspected, there did not appear to be any differences in color, reflectivity, contrast and roughness; neither the surface gel coat nor the finishing material was visibly affected. The Neoprene gasket material neither shed nor sloughed material, nor did it appear to have lost any of its elasticity. The test results are summarized in following table:

ClO2-9 EXPOSURE TEST RESULTS		
27-Feb-07		
Sample ID	Sample Dimensions, in	Comments/Observations (e.g., color, reflectivity, apparent roughness)
#1	6" X 3 1/4"	No visible change
#2	6" X 3 1/4"	No visible change
#3	6" X 5"	No visible change
#4	6" X 4 1/4"	No visible change
#5	11 3/4" X 5"	No visible change
#6	11 3/4" X 5"	No visible change
#7	3" X 3 1/2" (per 90° side)	No visible change
#8	3" X 3 1/2" (per 90° side)	No visible change
Neoprene	~1" X 12" in Aluminum Support	No visible change

4.3 Sterility Verification

To prove that the coupons were exposed to a sterilizing atmosphere, two pair of biological indicators [BIs] inoculated with >=10^6 CFU were deployed during each exposure: one on the shelf with the test articles and one at the top of the test chamber. Two species were used and no growth was seen on the exposed BIs. The incubation results are presented in the following tables to demonstrate disinfection efficacy.

ClO2-9 *B.atrophaeus* Test Results				
Day	Date	(+) Control	BI #1 (shelf)	BI #2 (top of chamber)
1	02/28/07	G	NG	NG
2	03/01/07	G	NG	NG
3	03/02/07	G	NG	NG
4	03/03/07	G	NG	NG
5	03/04/07	G	NG	NG
6	03/05/07	G	NG	NG
7	03/06/07	G	NG	NG

G = "Growth"; NG = "No Growth"

ClO2-9 G.stearothermophillus Test Results				
Day	Date	(+) Control	BI #1 (shelf)	BI #2 (top of chamber)
1	02/28/07	G	NG	NG
2	03/01/07	G	NG	NG
3	03/02/07	G	NG	NG
4	03/03/07	G	NG	NG
5	03/04/07	G	NG	NG
6	03/05/07	G	NG	NG
7	03/06/07	G	NG	NG

G = "Growth"; NG = "No Growth"

5 Photographs of Coupons:

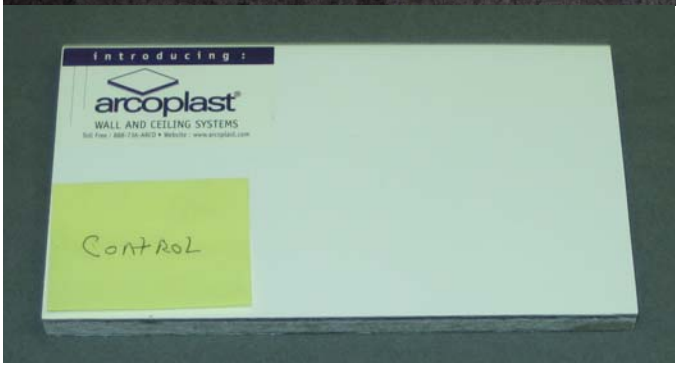
Sample ID#	Description	Pages
1	Arcoplast panel coupon	7
2	Arcoplast panel coupon	8
3	Arcoplast panel coupon	9
4	Arcoplast panel coupon	10
5	Arcoplast panel coupons joined together with aluminum extrusion support bracket	11
6	Arcoplast panel coupons joined together with aluminum extrusion support bracket	12
7	Arcoplast panel coupon corner pieces joined together with aluminum extrusion support bracket	13
8	Arcoplast panel coupon corner pieces joined together with aluminum extrusion support bracket	14
Neoprene Gasket	Neoprene gasket sample on ~12” extruded aluminum support	15

5.1 Coupon #1:

Sample Coupon #1 was factory-labeled “Arcoplast Wall & Ceiling Panel USDA/Antimicrobial Gel Coat - Class A Resin Non-Combustible Fiber & Cement Core 18oz Woven Roving Etched Black - Class C, Thickness 3.2 mm, 4mm, 6mm, 8mm, Core”

Coupon #1: before exposure runs

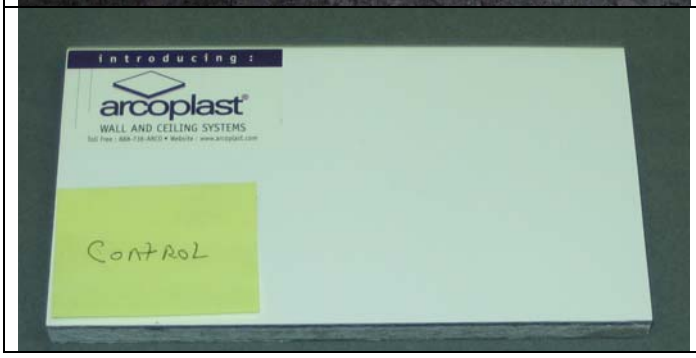
Coupon #1: after ClO2-9 run



Control coupon: No visible differences between the two coupons were observed.

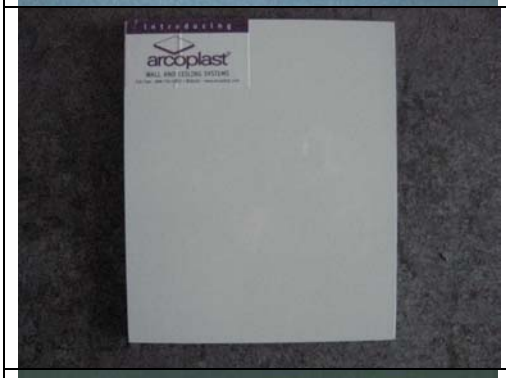
5.2 Coupon #2:

Sample Coupon #2 was factory-labeled “Arcoplast Wall & Ceiling Panel USDA/Antimicrobial Gel Coat - Class A Resin Non-Combustible Fiber & Cement Core 18oz Woven Roving Etched Black - Class C, Thickness 3.2 mm, 4mm, 6mm, 8mm, Core”

	Coupon #2: before exposure runs
	Coupon #2: after ClO2-9 run
	Control coupon: No visible differences between the two coupons were observed.

5.3 Coupon #3:

Sample Coupon #3 was factory-labeled “Arcoplast Wall & Ceiling Panel USDA/Antimicrobial Gel Coat - Class A Resin Non-Combustible Fiber & Cement Core 18oz Woven Roving Etched Black - Class C, Thickness 3.2 mm, 4mm, 6mm, 8mm, Core”

	Coupon #3 before exposure runs
	Coupon #3 after ClO2-9 run
	Control coupon: No visible differences between the two coupons were observed.

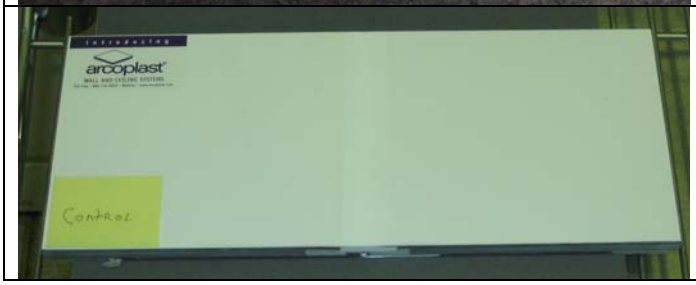
5.4 Coupon #4:

Sample Coupon #4 was factory-labeled “Arcoplast Wall & Ceiling Panel USDA/Antimicrobial Gel Coat - Class A Resin Non-Combustible Fiber & Cement Core 18oz Woven Roving Etched Black - Class C, Thickness 3.2 mm, 4mm, 6mm, 8mm, Core”

	Coupon #4 before exposure runs
	Coupon #4 after ClO2-9 run (note slight bubbling of label material only)
	Control coupon: No visible differences between the two coupons were observed.

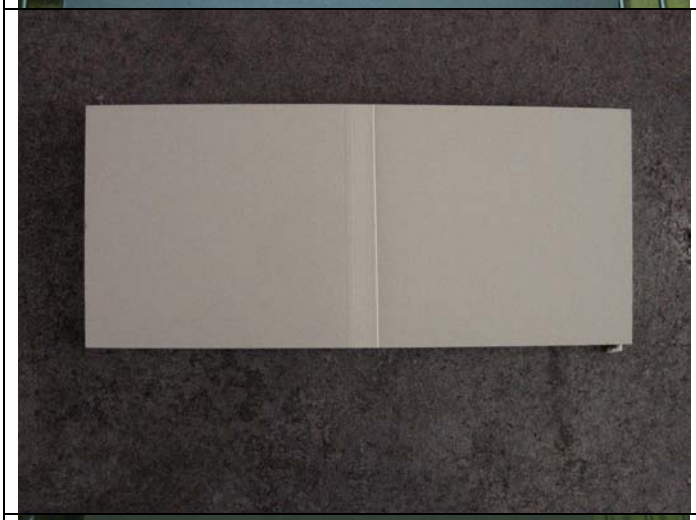
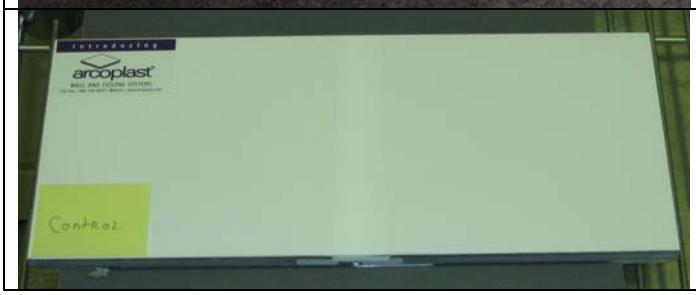
5.5 Coupon #5:

Sample Coupon #5 was joined together with an aluminum extrusion support bracket

	Coupon #5 before exposure runs
	Coupon #5 after ClO2-9 run
	Control coupon: No visible differences between the two coupons were observed.

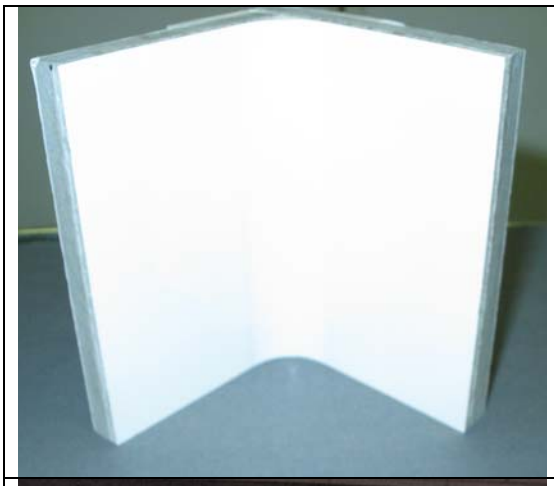
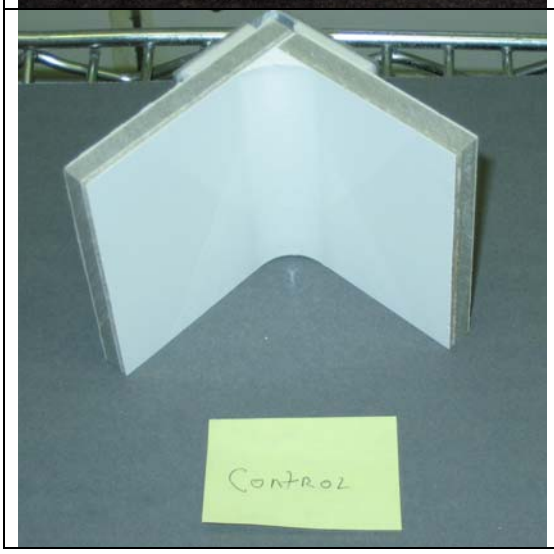
5.6 Coupon #6:

Sample Coupon #6 was joined together with an aluminum extrusion support bracket

	Coupon #6 before exposure runs
	Coupon #6 after ClO2-9 run
	Control coupon: No visible differences between the two coupons were observed.

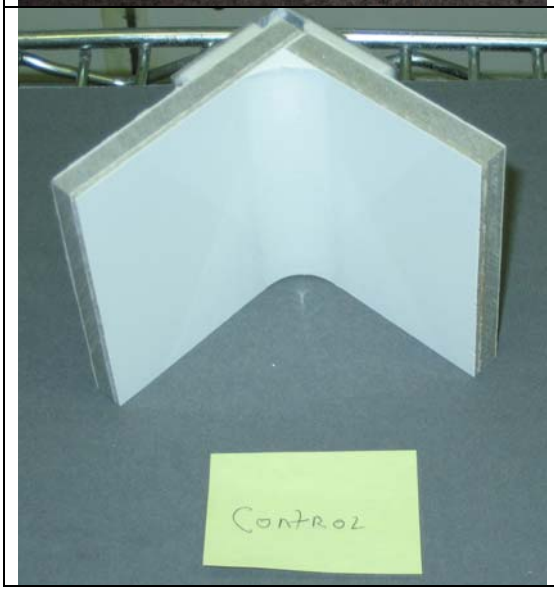
5.7 Coupon #7:

Sample coupon #7 was a 90° corner piece joined with aluminum extrusion support at the outer corners.

	Coupon #7 before exposure runs
	Coupon #7 after ClO2-9 run
	Control coupon: No visible differences between the two coupons were observed.

5.8 Coupon #8:

Sample coupon #8 was a 90° corner piece joined with aluminum extrusion support at the outer corners.

	Coupon #8 before exposure runs
	Coupon #8 after ClO2-9 run
	Control coupon: No visible differences between the two coupons were observed.

5.9 Neoprene Gasket:

The Neoprene gasket material was supported by a ~12” length of extruded aluminum.

	Neoprene gasket before exposure runs
	Neoprene gasket after ClO2-9 run. No visible differences between the before and after conditions