



**“HC” FULL CONTACT ALUMINUM
API SEPARATOR COVER
SPECIFICATIONS**

1. Scope

This specification covers the design and manufacture of ALLENTECH HC Full Contact Aluminum Floating Covers for API separator basins, normally exposed to the atmosphere, conforming to the latest editions of applicable API Standards and US EPA regulations.

2. General Specifications

2.1. Design

- 2.1.1. The HC Full Contact Aluminum Floating Cover for API separators (ASC) shall be a rigid all aluminum structure consisting of a series of seal welded, pressure tested, interconnected composite modules.
- 2.1.2. The flat composite modules shall be arranged in a regular pattern with their edges mated and clamped in a tight metal-to-metal joint with stainless steel bolts.
- 2.1.3. The floating cover shall be removable in 6.09M [20 feet] or larger segments.
- 2.1.4. Module-to-module and segment-to-segment joints shall be sealed with gasketed clamps or suitable sealant.
- 2.1.5. All parts of the ASC that use composite panels shall have the edges of the composite panels sealed by welding. Edge closure extrusion welds shall be pressure tested.
- 2.1.6. When landed, the ASC shall be held above the basin bottom on supports situated at regular intervals around the perimeter.
- 2.1.7. When floating, the entire bottom surface of the ASC except at manways and other penetrations that require liquid exposure shall make full contact with the liquid surface.
- 2.1.8. The annular space between the ASC and the basin shell shall be sealed by primary and secondary seals. The primary seal shall be liquid mounted. Both seals shall conform to 40CFR60 Subpart QQQ.
- 2.1.9. The ASC shall be continuously conductive, including across module joints, at all accessories and at the perimeter seal.
- 2.1.10. Every penetration and the perimeter shall have an extension that extends at least 150mm [6"] above the liquid surface.
- 2.1.11. Rainwater drains shall have a ball-type closure that reduces the open area by at least 90%. Rainwater drains shall not have any extensions into the liquid.

- 2.1.12. The ASC shall be designed to safely support a live load of at least 454 kg [1000 pounds] over .093 square meters [1 square foot] anywhere on the ASC while it is floating on 0.70 specific gravity liquid, while maintaining excess buoyancy equal to the dead weight of the ASC and without damaging the ASC or allowing product on the ASC.
- 2.1.13. The ASC shall be designed to safely support a live load of at least 454 kg [1000 pounds] over .093 square meters [1 square foot] anywhere on the ASC when resting on its supports without damaging the ASC, its supports or the support attachments.
- 2.1.14. The ASC shall have buoyancy sufficient to float three times the dead weight of the ASC without damaging the ASC or allowing product on the ASC.
- 2.1.15. All designs stresses shall be in accordance with the Aluminum Association's "Design Guide", latest edition.
- 2.1.16. The ASC shall be resistant to the stored liquids. For corrosion protection, a shop-applied coating of demonstrated chemical resistance shall be used.

2.2. Fabrication

- 2.2.1. The full-contact ASC shall be completely shop prefabricated by technicians trained in the fabrication of aluminum.
- 2.2.2. Each rectangular module shall be fabricated to a tolerance of plus or minus 1/64".
- 2.2.3. Every module shall be fully welded, including all required penetrations, by qualified aluminum welders with current certification documentation.
- 2.2.4. Each completed module shall pass a pressure test to between 3 and 4 psig prior to shipment.

3. Specific Requirements

3.1. Composite Modules

- 3.1.1. Each module shall consist of a composite panel, comprised of top and bottom aluminum skins bonded to an aluminum core with a heat cured epoxy, seal welded to extruded aluminum edge-clamping members. Completed modules shall be shop pressure tested and equipped with re-sealable test ports.
- 3.1.2. Shop and/or field gluing of edge closure members to composite panels are prohibited.

- 3.1.3. The top and bottom skins shall both be 1.02mm [0.040"] thick 3003-H16 aluminum.
- 3.1.4. The edge clamping members and supplemental structural members, if required, shall be 6061-T6 or equivalent.
- 3.1.5. The composite core shall be .076mm [0.003"] thick aluminum, regular hexagonal cells 25.4mm [1"] across the flats. The core shall be uniformly expanded and neatly trimmed.
- 3.1.6. The modules shall have a minimal nominal thickness of 76.2mm [3"].
- 3.1.7. The modules shall have a nominal size of 1524mm [60"] x 3048mm [120"], except as needed to accommodate the size and/or shape of the separator basin.
- 3.1.8. Raw honeycomb composite panels without edge closures shall be capable of supporting 340.2 kg [750] pounds on .032square meters [50 square inches] while simply supported on it's short edges, without permanent deformation greater than 3.1mm [1/8"] or crushing or shearing the core.
- 3.1.9. The module design shall preclude product from getting between the edge closures and the composite panel.
- 3.1.10. The modules shall butt together with no design gap between modules.
- 3.1.11. The modules shall be joined together with stainless steel bolts and aluminum nuts.
- 3.1.12. The module joint bolts and nuts shall be completely above the liquid level and shall not contact the liquid under all design conditions.
- 3.1.13. All bolts in structural joints including module connection bolts shall be 5/16" minimum size, national coarse threads, of austenitic stainless steel and shall thread into austenitic stainless steel, 6061 aluminum or 2024 aluminum nuts.

3.2. Support System

- 3.2.1. The ASC shall be supported from the basin walls at regular intervals as prescribed by ALLENTECH. Supports shall be either galvanized or stainless steel. Support anchors shall be stainless steel.

3.3. Removable Sections

- 3.3.1. The ASC shall have removable sections for maintenance as agreed by owner and ALLENTECH. The approximate section sizes for removal will be 6.09M [20’].
- 3.3.2. Unless otherwise specified, owner is to provide a lifting cradle for placing the cover into the separator. The design of the lifting cradle and attachments should be suitable for future removal of any of the floating cover sections for maintenance and cleaning.
- 3.3.3. In addition to the 6.09M [20’] removable sections, the design shall provide for removal of any individual 1.52M [5’] x 3.04M [10’] module.

3.4. Perimeter Seal

- 3.4.1. Unless otherwise specified, the space between the ASC and the basin shall be sealed with a primary liquid-mounted log seal and a secondary vapor-mounted wiper seal.
- 3.4.2. The primary seals shall consist of urethane foam encased in 35 mil urethane coated fabric. The secondary seal will be a foamed urethane wiper.
- 3.4.3. The seals shall be designed to be inspected or replaced while the basin is in service.
- 3.4.4. The seals shall be designed to accommodate plus and minus 50mm [2’] of deviation in the space between the ASC and the separator walls.

3.5. Static Bonding

- 3.5.1. Electrical continuity between modules shall be attained through the use of stainless steel cables arranged to provide multiple paths of bonding throughout the ASC.
- 3.5.2. The ASC shall be continuously conductive, with no non-metallic materials isolating metallic parts.
- 3.5.3. The design shall eliminate air/vapor gaps between modules at or above the liquid surface.
- 3.5.4. Each ASC shall have a minimum of two (2) un-spliced 3.18mm [1/8’] stainless steel grounding cables between the ASC and a suitable external ground rod or attachment, provided and installed by purchaser.

3.6. Accessories

3.6.1. Access Manways

3.6.1.1. Manways will be provided as specified in the proposal. Manways are 762mm [30"] square with bolted and gasketed covers. Manways shall have extension 150mm [6"] above the liquid level.

3.6.2. Rainwater drains

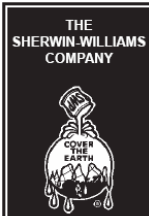
3.6.2.1. Each module will be equipped with two (2) rainwater drains, which will be seal-welded into the modules. The drains will be equipped with polyethylene balls to act as a seal when the drain is not required to be operating.

3.7. Coatings

3.7.1. All wetted components shall be coated with a Sherwin-Williams Phenicon HS epoxy-phenolic industrial coating, two coats with a 10 – 12 mil dry film thickness.

3.7.2. Preparation of materials to be coated will be light grit blast finish to SSPC SP-6.

3.7.3. Color to be off white.



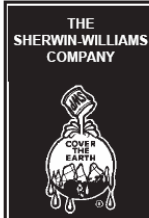
ControlTech
 Tank Linings,
 Containment &
 Corrosion Control
 Coatings

TRM.25

PHENICON® HS

PART A 920-W-A11 WHITE
 PART B 700-C-685 HARDENER
 PART B 700-C-825 LOW TEMPERATURE HARDENER

INDUSTRIAL & MARINE COATINGS		PRODUCT INFORMATION		Revised 4/03																																																																
PRODUCT DESCRIPTION		RECOMMENDED USES																																																																		
<p>PHENICON HIGH SOLIDS is a VOC-compliant epoxy novolac phenolic coating formulated for use as an internal lining for tanks used to hold crude oil and most refined petroleum products including unleaded gasoline, MTBE, aromatic solvents, and most octane booster blending stocks. Also formulated for secondary containment uses.</p> <ul style="list-style-type: none"> • Chemical Resistant • Low temperature hardener available for applications from 35°F minimum to 80°F maximum 		<ul style="list-style-type: none"> • Internal tank lining for most petroleum products such as: crude oil, unleaded gasoline, most aromatic solvents, motor fuels, alkalies, and brines. • Secondary containment. • Heavy duty exterior structural coating • Low temperature hardener not recommended for use at application temperatures above 80°F • Acceptable for use with cathodic protection systems 																																																																		
PRODUCT CHARACTERISTICS		PERFORMANCE CHARACTERISTICS																																																																		
<p>Finish: Semi-Gloss Color: Off White Volume Solids: 75% ± 2%, mixed Weight Solids: 86% ± 2%, mixed VOC (calculated): 230 g/L; 1.91 lb/gal, mixed Mix Ratio: 4:1 by volume Recommended Spreading Rate per coat: Wet mils: 7.0 - 8.0 Dry mils: 5.0 - 6.0 Coverage: 200 -240 sq ft/gal approximate NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance. Drying Schedule @ 7.0 mils wet @ 50% RH: With 700-C-685 Hardener:</p> <table border="0"> <tr> <td></td> <td>@ 55°F</td> <td>@ 77°F</td> <td>@ 120°F</td> </tr> <tr> <td>To touch:</td> <td>7 hours</td> <td>3 hours</td> <td>1 hour</td> </tr> <tr> <td>To recoat:</td> <td></td> <td></td> <td></td> </tr> <tr> <td> minimum:</td> <td>48 hours</td> <td>18 hours</td> <td>4 hours</td> </tr> <tr> <td> maximum:</td> <td>30 days</td> <td>30 days</td> <td>30 days</td> </tr> <tr> <td>Cure to service:</td> <td>14 days</td> <td>7 days</td> <td>3 days</td> </tr> <tr> <td>Pot Life:</td> <td>4 hours</td> <td>2 hours</td> <td>30 minutes</td> </tr> <tr> <td>Sweat-in Time:</td> <td>30 minutes</td> <td>15 minutes</td> <td>None</td> </tr> </table> <p>With 700-C-825 Hardener:</p> <table border="0"> <tr> <td></td> <td>@ 35°F</td> <td>@ 55°F</td> <td>@ 77°F</td> </tr> <tr> <td>To touch:</td> <td>12 hours</td> <td>4 hours</td> <td>2 hours</td> </tr> <tr> <td>To recoat:</td> <td></td> <td></td> <td></td> </tr> <tr> <td> minimum:</td> <td>24 hours</td> <td>18 hours</td> <td>12 hours</td> </tr> <tr> <td> maximum:</td> <td>30 days</td> <td>30 days</td> <td>30 days</td> </tr> <tr> <td>Cure to service:</td> <td>7 days</td> <td>5 days</td> <td>3 days</td> </tr> <tr> <td>Pot Life:</td> <td>4 hours</td> <td>2 hours</td> <td>1 hour</td> </tr> <tr> <td>Sweat-in Time:</td> <td>15 minutes</td> <td>None</td> <td>None</td> </tr> </table> <p>If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent</p> <p>Shelf Life: 36 months, unopened, at 77°F Flash Point: 80°F, PMCC, mixed Reduction: Not recommended Clean Up: 255-C-005</p>			@ 55°F	@ 77°F	@ 120°F	To touch:	7 hours	3 hours	1 hour	To recoat:				minimum:	48 hours	18 hours	4 hours	maximum:	30 days	30 days	30 days	Cure to service:	14 days	7 days	3 days	Pot Life:	4 hours	2 hours	30 minutes	Sweat-in Time:	30 minutes	15 minutes	None		@ 35°F	@ 55°F	@ 77°F	To touch:	12 hours	4 hours	2 hours	To recoat:				minimum:	24 hours	18 hours	12 hours	maximum:	30 days	30 days	30 days	Cure to service:	7 days	5 days	3 days	Pot Life:	4 hours	2 hours	1 hour	Sweat-in Time:	15 minutes	None	None	<p>RESISTANCE GUIDE</p> <p>IMMERSION (Ambient temperature)</p> <ul style="list-style-type: none"> • Alkalies Recommended • Crude oil Recommended • Diesel fuel Recommended • Lubricating oils Recommended • Fuel oils Recommended • Aromatic solvents Recommended • Hi-aromatic gasoline Recommended • Ethanol gasohol Recommended • MTBE, ETBE, TAME Recommended • Ether/fuel blends (reformed gas) Recommended • Acids Recommended* • Methanol, ethanol, or blends Recommended** <p>SECONDARY CONTAINMENT (Immersion service up to 72 hours)</p> <ul style="list-style-type: none"> • Alkalies Recommended • Crude oil Recommended • Diesel fuel Recommended • Lubricating oils Recommended • Fuel oils Recommended • Aromatic solvents Recommended • Hi-aromatic gasoline Recommended • Ethanol gasohol Recommended • MTBE, ETBE, TAME Recommended • Ether/fuel blends (reformed gas) Recommended • Dilute acids Recommended • Methanol, ethanol, or blends Recommended <p>Epoxy coatings may darken or yellow following application and curing. * Consult your Sherwin-Williams representative for specific application, temperature, concentration, and exposure recommendations. ** Not recommended when using Low Temperature Hardener</p>		
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TRM.25A

PHENICON® HS

INDUSTRIAL & MARINE COATINGS	APPLICATION BULLETIN																																																																	
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<p>Surface preparation must be completed as indicated.</p> <p>Mix contents of each component thoroughly, by using power agitation. Make certain no pigment remains on the bottom of the can. Then combine four parts by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated. Re-stir before using.</p> <p>Apply paint at the recommended film thickness and spreading rate as indicated below:</p> <p>Recommended Spreading Rate per coat: Wet mils: 7.0 - 8.0 Dry mils: 5.0 - 6.0 Coverage 200 -240 sq ft/gal approximate</p> <p>NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.</p> <p>Drying Schedule @ 7.0 mils wet @ 50% RH: With 700-C-685 Hardener:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">@ 55°F</th> <th style="text-align: center;">@ 77°F</th> <th style="text-align: center;">@ 120°F</th> </tr> </thead> <tbody> <tr> <td>To touch:</td> <td style="text-align: center;">7 hours</td> <td style="text-align: center;">3 hours</td> <td style="text-align: center;">1 hour</td> </tr> <tr> <td>To recoat:</td> <td></td> <td></td> <td></td> </tr> <tr> <td> minimum:</td> <td style="text-align: center;">48 hours</td> <td style="text-align: center;">18 hours</td> <td style="text-align: center;">4 hours</td> </tr> <tr> <td> maximum:</td> <td style="text-align: center;">30 days</td> <td style="text-align: center;">30 days</td> <td style="text-align: center;">30 days</td> </tr> <tr> <td>Cure to service:</td> <td style="text-align: center;">14 days</td> <td style="text-align: center;">7 days</td> <td style="text-align: center;">3 days</td> </tr> <tr> <td>Pot Life:</td> <td style="text-align: center;">4 hours</td> <td style="text-align: center;">2 hours</td> <td style="text-align: center;">30 minutes</td> </tr> <tr> <td>Sweat-in Time:</td> <td style="text-align: center;">30 minutes</td> <td style="text-align: center;">15 minutes</td> <td style="text-align: center;">None</td> </tr> </tbody> </table> <p>With 700-C-825 Hardener:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">@ 35°F</th> <th style="text-align: center;">@ 55°F</th> <th style="text-align: center;">@ 77°F</th> </tr> </thead> <tbody> <tr> <td>To touch:</td> <td style="text-align: center;">12 hours</td> <td style="text-align: center;">4 hours</td> <td style="text-align: center;">2 hours</td> </tr> <tr> <td>To recoat:</td> <td></td> <td></td> <td></td> </tr> <tr> <td> minimum:</td> <td style="text-align: center;">24 hours</td> <td style="text-align: center;">18 hours</td> <td style="text-align: center;">12 hours</td> </tr> <tr> <td> maximum:</td> <td style="text-align: center;">30 days</td> <td style="text-align: center;">30 days</td> <td style="text-align: center;">30 days</td> </tr> <tr> <td>Cure to service:</td> <td style="text-align: center;">7 days</td> <td style="text-align: center;">5 days</td> <td style="text-align: center;">3 days</td> </tr> <tr> <td>Pot Life:</td> <td style="text-align: center;">4 hours</td> <td style="text-align: center;">2 hours</td> <td style="text-align: center;">1 hour</td> </tr> <tr> <td>Sweat-in Time:</td> <td style="text-align: center;">15 minutes</td> <td style="text-align: center;">None</td> <td style="text-align: center;">None</td> </tr> </tbody> </table> <p>Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.</p>		@ 55°F	@ 77°F	@ 120°F	To touch:	7 hours	3 hours	1 hour	To recoat:				minimum:	48 hours	18 hours	4 hours	maximum:	30 days	30 days	30 days	Cure to service:	14 days	7 days	3 days	Pot Life:	4 hours	2 hours	30 minutes	Sweat-in Time:	30 minutes	15 minutes	None		@ 35°F	@ 55°F	@ 77°F	To touch:	12 hours	4 hours	2 hours	To recoat:				minimum:	24 hours	18 hours	12 hours	maximum:	30 days	30 days	30 days	Cure to service:	7 days	5 days	3 days	Pot Life:	4 hours	2 hours	1 hour	Sweat-in Time:	15 minutes	None	None	<p>Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.</p> <p>When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.</p> <p>Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.</p> <p>Reduction of material will affect film build, appearance, and adhesion.</p> <p>Do not mix previously catalyzed material with new.</p> <p>Do not apply the material beyond recommended pot life.</p> <p>In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with reducer 255-C-005</p> <p>Low temperature hardener recommended for applications below 55°F. Low temperature hardener not recommended for use at application temperatures above 80°F</p> <p>Use of low temperature hardener may cause accelerated yellowing of the coating.</p> <p>Do not use low temperature hardener for immersion service in methanol, ethanol, or blends.</p> <p>Holiday Detection: Use a wet sponge-type detector such as KD Bird Dog or equivalent equipment per manufacturer's recommendation. Test only cured coating, as solvent entrapment in fresh films may provide false readings.</p> <p>Refer to Product Information sheet for additional performance characteristics and properties.</p>	
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<p>Clean spills and spatters immediately with Reducer 255-C-005. Clean tools immediately after use with Reducer 255-C-005. Follow manufacturer's safety recommendations when using any solvent.</p>	<p>Refer to the MSDS sheet before use.</p> <p>Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.</p>																																																																	