

BP CHEMICALS, INC.
MIXED WASTE POND CLOSURE PROJECT

FIELD CHANGE REQUEST FORM

Field Change Number: 011 Date: 10/17/96

Subject: Revise Specification 13200, Geosynthetic Membranes

Description: Section 2.1.8 - correct maximum carbon black content from 2.0% to 2.5%; Section 3.5.1 (e) Change number of coupons from 50 to 5.

Justification: Correct typographical errors in Section 13200 to make it consistent with QA/QC Plan.

Attachments: page 13200-3 (rev. 10-31-96), page 13200-10 (rev. 10-11-96)

Requested by: R. R. Blickwedehl Dames & Moore 10/17/96
Signature Company Date

BPCI Project Approvals

Dames & Moore Robert R. Blickwedehl Yes No
Certifying Engineer Signature Approval Date

BPCI Radiation NOT APPLICABLE Yes No
Safety Officer Signature Approval Date

BPCI HSE NOT APPLICABLE Yes No
Manager Signature Approval Date

BPCI Project Will MB Yes No 10/17/96
Manager Signature Approval Date

Regulatory Agency Concurrence

Ohio EPA Yes No
Concurrence Signature Concur Date

NRC Yes No
Concurrence Signature Concur Date

BP CHEMICALS, INC.
MIXED WASTE POND CLOSURE PROJECT
FIELD CHANGE REQUEST FORM

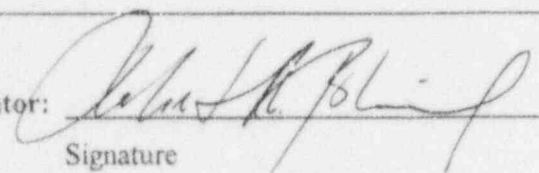
Field Change No. 011 Date: 10-17-96

Subject: CORRECTIONS TO SPECIFICATION SECTION 13200,
GEOSYNTHETIC MEMBRANES

Description: • IN SECTION 2.1.8, CHANGE MAXIMUM CARBON
CONTENT FROM 2.0% TO 2.5%.
• IN SECTION 3.5.1.2 CHANGE NUMBER OF
COUPONS FROM 50 TO 5.

Justification: CORRECTS TYPOGRAPHICAL ERRORS AND MAKES
SPECIFICATION CONSISTENT WITH QA/QC PLAN

Attachments: NONE

Initiator:  DAMES & MOORE 10/18/96
Signature Company Date

Field Change Request Form

Field Change No. 011 Date: 10-17-96

Subject: CORRECTIONS TO SPECIFICATION SECTION 13200,
GEOSYNTHETIC MEMBRANES

BPCI Approvals

Dames & Moore
Certifying Engineer

Signature _____

Yes No
Approval

10/17/96
Date

**BPCI Radiation
Safety Office**

Signature _____

Yes	No
Approval	

Date _____

**BPCI HSE
Manager**

Signature _____

Yes	No
Approval	

Date _____

BPCI Project Manager

Signature _____

Yes	No
Approval	

Date _____

Regulatory Reviews

Ohio EPA
Concurrence

Signature _____

Yes No
Concurrence

Date _____

NRC
Concurrence

Signature _____

Yes	No
Concurrence	

Date _____

GEOSYNTHETIC MEMBRANES

2.1.4	Dimensional Stability (% change - each direction; ASTM D 1204)	$\pm 2\%$	$\pm 2\%$
2.1.5	Maximum Melt Flow Index (ASTM D 1238)	0.3 g/10 min	0.3 g/10 min
2.1.6	Specific Gravity (ASTM D 792)	0.93	0.93
2.1.7	Thickness (ASTM D 1593)	60 mils	100 mils
2.1.8	Maximum Carbon Black Content (ASTM D 1603)	2.5%	2.5%
2.1.9	Environmental Stress Cracking (min) (ASTM D 1693)	1500 hrs	1500 hrs
2.1.10	Resistance to Soil Burial (ASTM D 3083 and D 638)		
	a. % change in tensile strength at break and yield	$\pm 10\%$	$\pm 10\%$
	b. % change in elongation at break and yield	$\pm 10\%$	$\pm 10\%$
2.1.11	Thermal Stability (min) (ASTM D 3895)	2000 hrs	2000 hrs
2.1.12	Puncture Resistance (FTMS 101C-2065)	75 (70) lbs	130 lbs
2.1.13	Minimum angle of friction between HDPE and soil	15° (27°)	15°
2.1.14	Refer to the project Quality Assurance/Quality Control Plan provided the Closure Plan for required number and frequency of the above tests that shall be performed by the Contractors quality personnel.		

2.2 Welding Materials

- 2.2.1 All welding material shall be of a type recommended and supplied by the manufacturer and shall be delivered in the original sealed containers each with an indelible label bearing the brand name, manufacturer's mark number, and directions for use.
- 2.2.2 The welding equipment used shall be capable of continuously monitoring and controlling the temperature of the zone of contact where the machine is actually fusing the lining material so as to ensure that changes in environmental conditions will not affect the integrity of the weld.
- 2.2.3 All clamps, clips, bolts, nuts, or other fasteners used to secure the liner around each appurtenance shall have a life span equal to or exceeding the liner and be those recommended for use by the liner manufacturer.

GEOSYNTHETIC MEMBRANES

2. A rubber hose with fittings and connections;
 3. A sharp hollow needle, or other approved pressure feed device.
- b. The following procedures shall be followed:
1. Seal both ends of the seam to be tested;
 2. Insert needle or other approved pressure feed device into the tunnel created by the fusion weld;
 3. Energize the air pump to a pressure between 25 and 30 psi (160 and 200 kPa), close valve, and sustain pressure for approximately two minutes;
 4. If loss of pressure exceeds 2 psi (15 kPa), or does not stabilize, locate faulty area and repair in accordance with Paragraph 3.6 of this Section.
 5. Remove needle or other approved pressure feed device and seal.
- 3.4.4 Bolting: All bolting will be done as per details in the design drawings. All batten strips will be visually inspected to assure compression of the neoprene gasketing. All batten strips will be tapped in the center between two bolts, with a ballpeen hammer. A high pitched ringing sound indicates proper pressure between the strip and the gasket. A low pitched sound indicates a lack of pressure between the strip and the gasket. All anchor bolts are to be re-checked for tightness using a standard ratchet assembly.

3.5 Destructive Testing

- 3.5.1 At a minimum, every 500 linear feet of seam will be tested as follows:
- a. A test strip, 54 inches in length by 12 inches in width, will be removed.
 - b. Three 6-inch by 1-inch samples will be tested in peel with a manual tensiometer immediately.
 - c. The Contractor will keep 12 inches, give the QA/QC Engineer 12 inches for 3rd party testing and give the client 12 inches to store in their archives.
 - d. As required, the Contractor's portion will be tested by their personnel in accordance with the following:
 1. Seam strength ASTM D 3083 100% of sheet yield strength
 2. Peel adhesion ASTM D 413 Film tearing bond
 - e. 5 coupons, 6 inches by 1-inch per sample are to be tested.
 - f. All areas that have been destructively tested will be repaired with patches and welded by the extrusion method and vacuum tested.