

Haley Griffith (adpce.ad)

Subject: RE: Georgia Pacific Consumer Operations Permit 292-S3N - CQA Report Clarification Response

From: Ross, Sarah M <sarah.ross@gapac.com>

Sent: Wednesday, October 22, 2025 1:11 PM

To: Richard Bennett (adpce.ad) <richard.bennett@arkansas.gov>; Bardella, Tony L <Tony.Bardella@terracon.com>

Cc: McCormick, Dave C. <Dave.McCormick@terracon.com>; Chavis, Dana M <Dana.Chavis@GAPAC.com>; Johnson, Rachel M <Rachel.JOHNSON2@GAPAC.com>

Subject: RE: Georgia Pacific Consumer Operations Permit 292-S3N - CQA Report Clarification Response

AFIN 02-00013

Permit No. 292-S3N

Attachment: GP Crossett QC Tables 3A and 4A Revised 10-21-25.pdf

RE: Item 5 in [0292-S3N_Additional Information for CQA Report_20250714.pdf](#)

ePortal Submission ID: HQ3-N1CS-02TVF

Mr. Bennett,

Attached are QC Tables 3A and 4A with the Standard OIT spec updated to include Method D8117 used in the landfill closure.

Please let us know if you have additional questions. Thank you.

Sincerely,

Sarah Ross, Environmental

GP Crossett LLC

(870) 415-6363

From: Bardella, Tony L <Tony.Bardella@terracon.com>

Sent: Monday, July 14, 2025 1:49 PM

To: Richard Bennett (adpce.ad) <richard.bennett@arkansas.gov>

Cc: McCormick, Dave C. <Dave.McCormick@terracon.com>; Ross, Sarah M <sarah.ross@gapac.com>; Chavis, Dana M <Dana.Chavis@GAPAC.com>; Johnson, Rachel M <Rachel.JOHNSON2@GAPAC.com>

Subject: Georgia Pacific Consumer Operations Permit 292-S3N - CQA Report Clarification Response

Sent by an external sender

Richard,

Please see the attached response to your questions sent on June 30 and the follow up call July 9, regarding clarifications to the Georgia-Pacific North Landfill Closure CQA Report.

Thank you,

Tony Bardella

Staff Engineer | Solid Waste Services



25809 I-30 South | Bryant, Arkansas 72022

D (501) 943-1049 | M (501) 794-9466



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TABLE 3A
40 mil LLDPE Textured MQC Specifications

Resin Manufacturer (1)			
Test	Method(2)	Testing Frequency	Min. Requirements (5)
Density	ASTM D 1505	200,000 lb and per batch	$\geq 0.915 \text{ g/cm}^3$
	ASTM 792, Meth B		
Melt Flow Index	ASTM D 1238 (190°C/2.16 kg)	200,000 lb and per batch	$\leq 1.0 \text{ g / 10 min.}$
Manufacturer's Quality Control			
Thickness, nominal	ASTM D 5994	Each Roll	40 mil
Thickness, Min. ave	ASTM D 5994	Each Roll	38 mil
Thickness, lowest indiv. For 8 of 10 spec.	ASTM D 5994	Each Roll	36 mil
Thickness, lowest indiv. For 1 of 10 spec.	ASTM D 5994	Each Roll	34 mil
Asperity Height (Min. ave.) ³	GRI GM13 ASTM D 7466	Each Roll	16 mil
Density	ASTM D 1505	Per 200,000 lb.	$\leq 0.939 \text{ g/cm}^3$
Carbon Black Dispersion ⁴	ASTM D 5596	Per 45,000 lb	Category 1 or 2
Carbon Black Content ⁶	ASTM D 1603 ASTM D 4218	Per 20,000 lb	2 to 3 %
Tensile Properties:			
Break Strength Elongation	ASTM D 6693 Type IV Dumbbell, 2 ipm G.L. = 2.0 inches	Per 20,000 lb	60 lb/in 250%
	ASTM D 1004		
Puncture Resistance	ASTM D 4833	Per 45,000 lb	44 lb
Oxidation Induction Time (OIT)			
Standard OIT	GRI GM 17 / ASTM D 3895 / ASTM D 8117	200,000 lb and per batch	100 min
High Pressure OIT	ASTM D 5885		400 min
Oven Aging @ 85°C			
Standard OIT	GRI GM 17 / ASTM D 3895 / ASTM D 8117	Per each formulation	35%
High Pressure OIT	ASTM D 5885		60%
UV Resistance			
High Pressure OIT	ASTM D 5885	Per each formulation	35%

1. The polyethylene resin from which the geomembrane is made will generally be in the density range of 0.926 g/ml or lower, and have a melt index value per ASTM D1238 of less than 1.0 g/10 min. This refers to the natural, i.e., nonformulated, resin. The resin shall be virgin material with no more than 10% rework. If rework is used, it must be a similar HDPE as the parent material. No post consumer resin (PCR) of any type shall be added to the formulation.
2. Test to be performed according to the latest test method as approved by the certifying engineer.
3. Textured geomembrane shall generally have uniform texturing appearance. It shall be free from agglomerated texturing material and such defects that would affect the specified properties of the geomembrane.
4. Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
5. If 40-mil LLDPE smooth is used, it must meet GRI-GM17 standards. Use of smooth geomembrane instead of textured geomembrane must be approved by the certifying engineer.
6. Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D 1603 (tube furnace) can be established.

TABLE 4A
60 mil HDPE Textured MQC Specifications

Resin Manufacturer (1)			
Test	Method(2)	Testing Frequency	Min. Requirements (5)
Density	ASTM D 1505	200,000 lb and per batch	$\geq 0.932 \text{ g/cm}^3$
	ASTM 792, Meth B		
Melt Flow Index	ASTM D 1238 (190°C/2.16 kg)	200,000 lb and per batch	$\leq 1.0 \text{ g / 10 min.}$
Manufacturer's Quality Control			
Thickness, nominal	ASTM D 5994	Each Roll	60 mil
Thickness, Min. ave	ASTM D 5994	Each Roll	57 mil
Thickness, lowest indiv. For 8 of 10 spec.	ASTM D 5994	Each Roll	54 mil
Thickness, lowest indiv. For 1 of 10 spec.	ASTM D 5994	Each Roll	51 mil
Asperity Height (Min. ave.) ³	GRI GM13 ASTM D 7466	Each Roll	16 mil
Density	ASTM D 1505	Per 200,000 lb.	$\geq 0.94 \text{ g/cm}^3$
Carbon Black Dispersion ⁴	ASTM D 5596	Per 45,000 lb	Category 1 or 2
Carbon Black Content ⁶	ASTM D 1603 ASTM D 4218	Per 20,000 lb	2 to 3 %
Tensile Properties:			
Break Strength Elongation	ASTM D 6693 Type IV Dumbbell, 2 ipm G.L. = 2.0 inches	Per 20,000 lb	90 lb/in 100%
Yield Strength Elongation			126 lb/in 12%
Tear Resistance	ASTM D 1004	Per 45,000 lb	42 lb
Puncture Resistance	ASTM D 4833	Per 45,000 lb	90 lb
Oxidation Induction Time (OIT)			
Standard OIT	GRI GM 13 / ASTM D 3895 / ASTM D 8117	200,000 lb and per batch	100 min
High Pressure OIT	ASTM D 5885		400 min
Oven Aging @ 85 ⁰ C			
Standard OIT	GRI GM 13 / ASTM D 3895 / ASTM D 8117	Per each formulation	55%
High Pressure OIT	ASTM D 5885		80%
UV Resistance			
High Pressure OIT	ASTM D 5885	Per each formulation	50%

1. The resin shall be virgin material with no more than 10% rework. If rework is used, it must be a similar HDPE as the parent material. No post consumer resin (PCR) of any type shall be added to the formulation.
2. Test to be performed according to the latest test method as approved by the certifying engineer.
3. Textured geomembrane shall generally have uniform texturing appearance. It shall be free from agglomerated texturing material and such defects that would affect the specified properties of the geomembrane.
4. Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
5. If 60-mil HDPE smooth is used, it must meet GRI-GM13 standards. Use of smooth geomembrane instead of textured geomembrane must be approved by the certifying engineer.
6. Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D 1603 (tube furnace) can be established.