

Certificate of Test

Client:	CapRite 13100 Wortham Center Dr. #333 Houston, Texas 77065	Date:	12 November 2024
Client Contact:	David Brown	SES Document No.:	2024_2674-CT-02_Rev1
PO Number:	1004	Project Manager:	Taylor Yeary, PE
		Date of Testing:	10/16/2024

Project/Test Description: CapRite contracted SES to perform compressive load testing of Qty. 1 Thread Protector Cap.

Test Sample Identification: CAP007 (Tenaris 5-1/2" 23lb-P110 ICY TORQ SFW Casing Thread Protector)
(See Attachment 3 for CapRite drawing and material information.)

Test Equipment: Baldwin Hydraulic Vertical Load Frame, 20K Load Cell (SN: 1149)

Procedure: The loading procedure consisted of a 3,500 lbf hold for 1 minute, a 7,000 lbf hold for 1 minute, and a 14,000 lbf hold for 1 minute on the 23# casing pin and thread protector assembly, see Attachment 2. Between each hold, the sample was unloaded for inspection. Acceptance criteria was for the sample to not sustain significant deformation.

Results: Compressive Load Testing was successfully completed for all specified loads. No significant deformation was observed during visual examination of the cap or threads between load steps and after test was complete. Some minor material deformation was observed and can be seen in the test photos included in Attachment 2.

Prepared by: 

Cole Gatz
Project Engineer

Reviewed by: 

Taylor Yeary, PE
Associate

Certificate of Test

List of Attachments:

Attachment 1: Plot of Applied Force Data

Attachment 2: Testing Photos

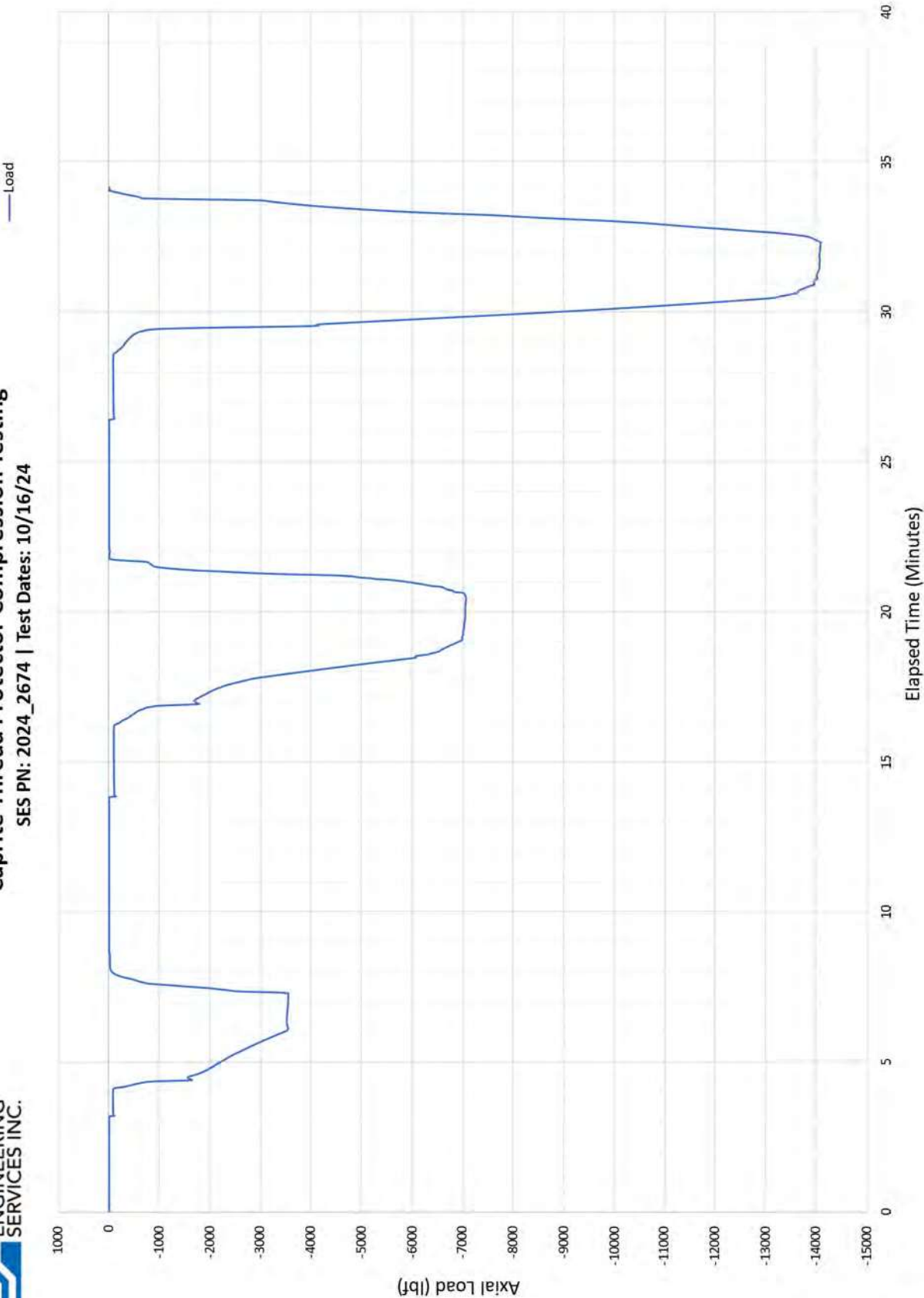
Attachment 3: Calibration Certificates

Attachment 4: Sample Drawing and Material Datasheet

Attachment 1: Plot of Applied Force Data



Caprite Thread Protector Compression Testing
SES PN: 2024_2674 | Test Dates: 10/16/24



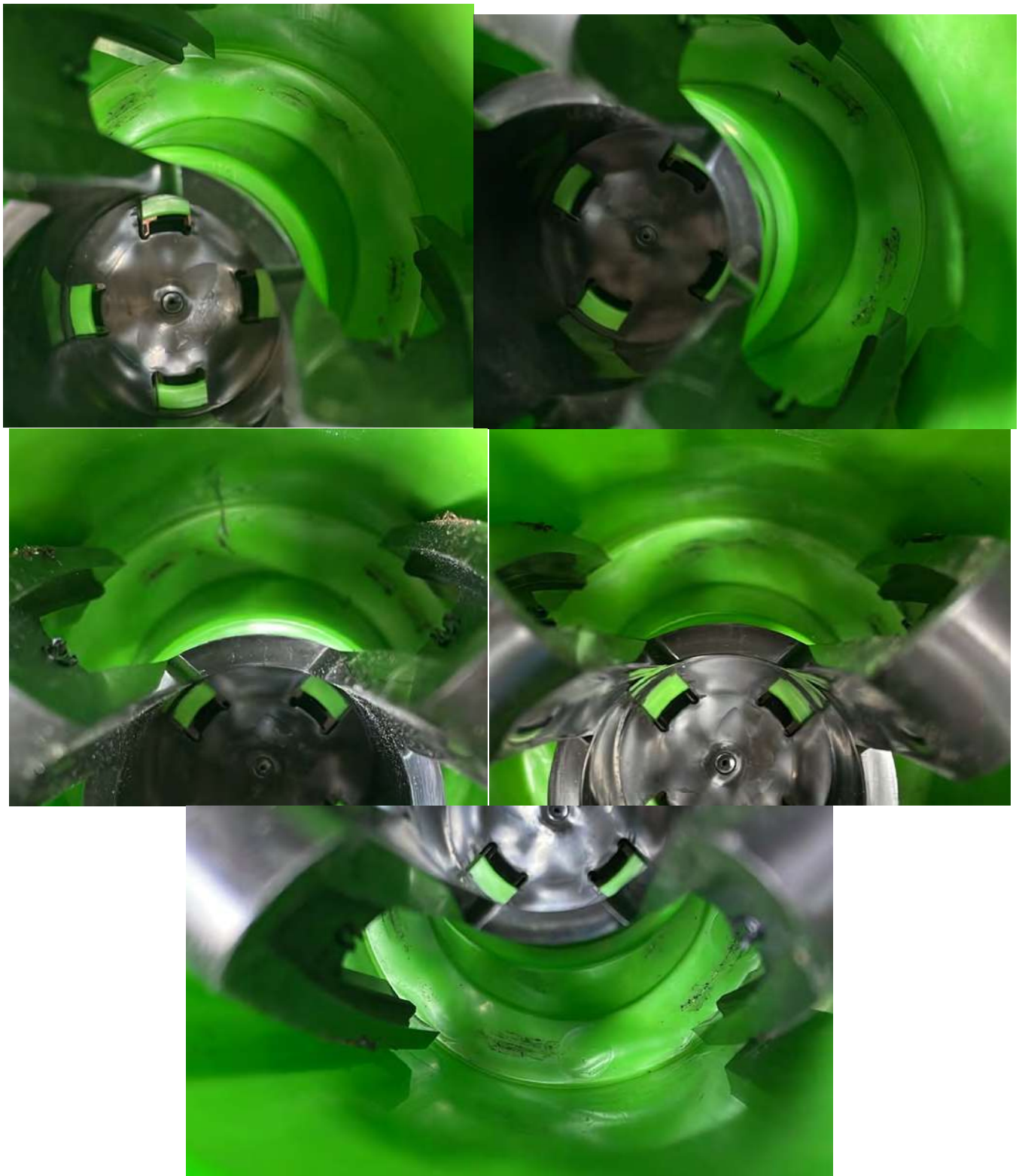
Attachment 2: Testing Photos



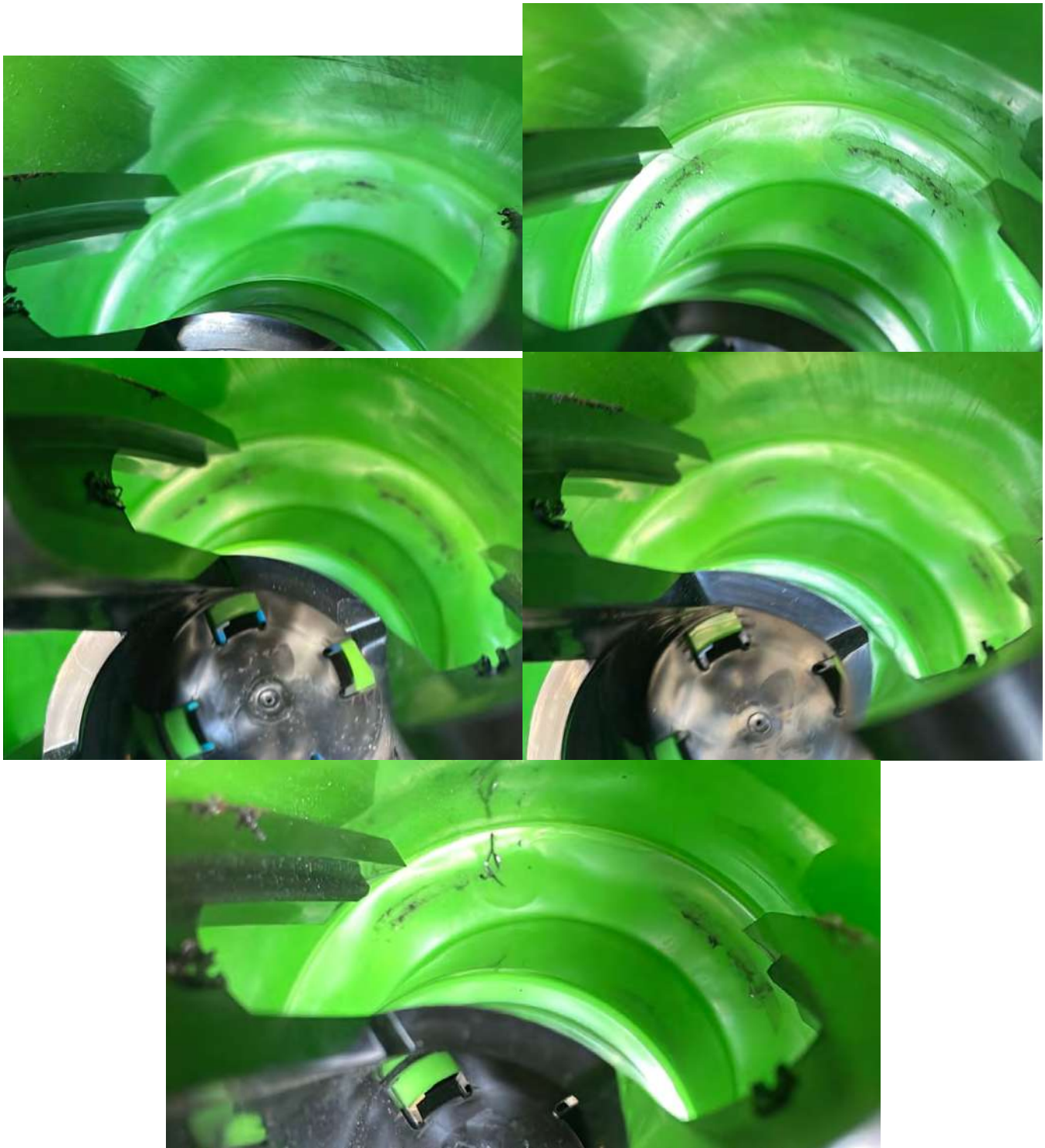




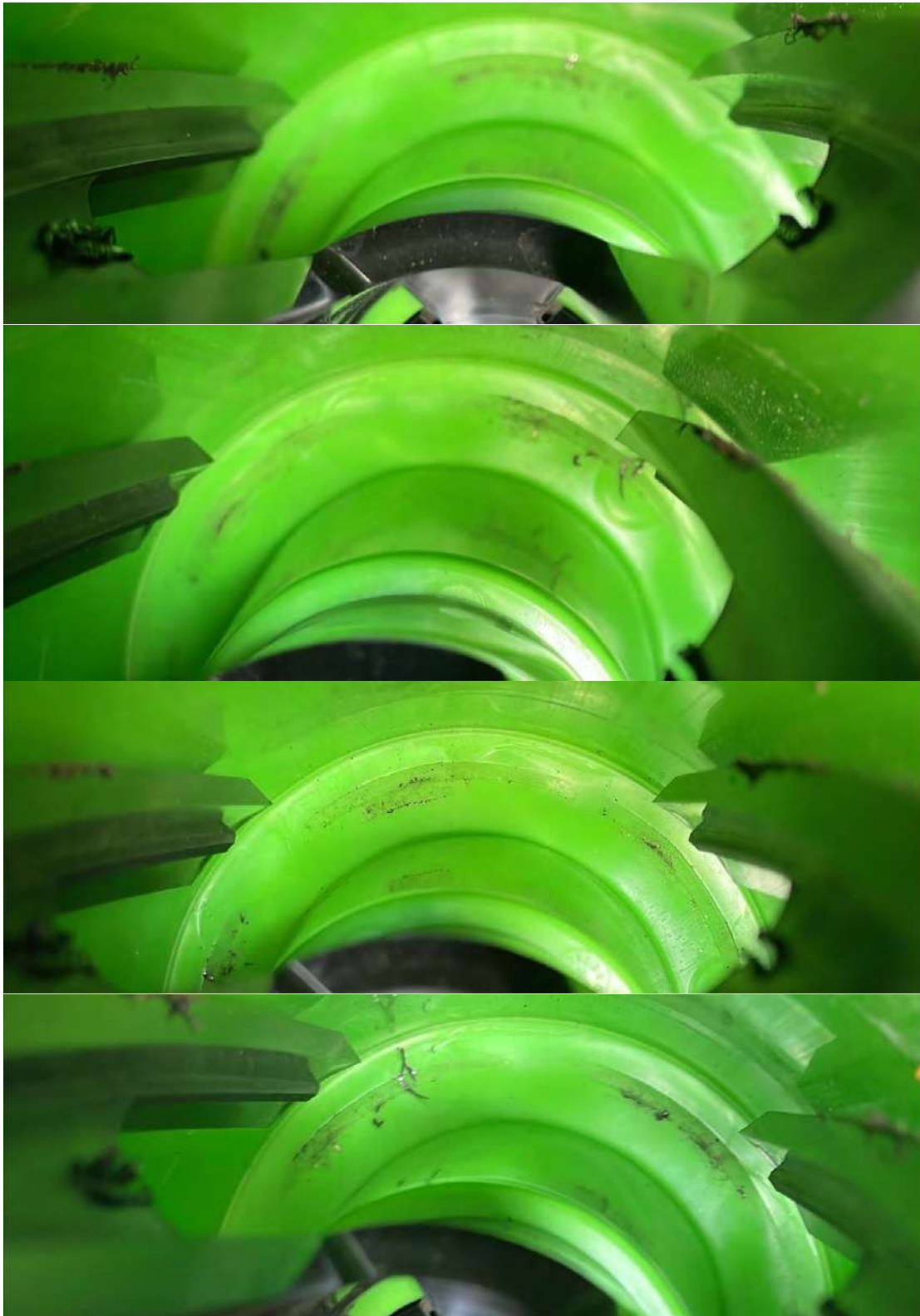
Pre-Testing Cap internals



Post-3500lbf hold



Post-7000lbf hold



Post-14000lbf hold

Attachment 3: Calibration Certificates

Stress Engineering Services, Inc.
13800 Westfair East Dr.
Houston, Texas 77041

Cal Date: 21 May 2024
Due Date: 21 May 2025
Report No: 45433-1149C
SES PN: 9110305

Calibration Report

Owner: Stress Engineering Services
13800 Westfair East Drive
Houston, Texas 77041

Ambient Temp: 86.1 F

Machine: Lebow – Interface 20,000 Lb Load Cell System
Lebow Load Cell Model: 3157-20K Serial: 1149
Interface Indicator Model: 9840 Serial: 75300
Shunt Cal: 12,790 Lbs

COMPRESSION LOADING - NEGATIVE OUTPUT (POSITIVE SHUNT)
“AS FOUND, AS LEFT” – NO ADJUSTMENT

Run 1:				Run 2:				Repeatability:	
Load, in Lbs:		Machine Error		Load, in Lbs:		Machine Error		Lbs: %:	
True:	Indicated:	Lbs:	%:	True:	Indicated:	Lbs:	%:	Lbs:	%:
2,000	2,000	0	0.02%	1,999	2,000	1	0.08%	1	0.03%
3,995	4,000	6	0.14%	3,997	4,000	3	0.08%	-2	-0.06%
5,991	6,000	9	0.16%	5,994	6,000	6	0.10%	-3	-0.06%
7,987	8,000	13	0.16%	7,992	8,000	8	0.10%	-5	-0.06%
9,985	10,000	15	0.15%	9,991	10,000	9	0.09%	-6	-0.06%
11,981	12,000	19	0.16%	11,989	12,000	11	0.09%	-8	-0.06%
13,980	14,000	20	0.14%	13,985	14,000	15	0.11%	-5	-0.04%
15,978	16,000	22	0.14%	15,982	16,000	18	0.11%	-5	-0.03%
17,976	18,000	24	0.14%	17,979	18,000	21	0.12%	-3	-0.02%
19,988	20,000	32	0.16%	19,975	20,000	25	0.12%	-7	-0.03%

Tolerance per ASTM E-4: 1% (of Reading)

System Resolution: 1 Lb

Machine Loading Range: 2,000 to 20,000 Lbs

Maximum Error Observed: 0.16 % @ 8,000 Lbs. Indicated

No-Load Output: 0.009 mV/V Shunt Output: 2.038 mV/V

True loads were recorded at values of indicated load according to ASTM Standard E4-21

This calibration was performed using equipment verified by Morehouse Instrument Company, Inc. and is traceable to SI through a National Metrology Institute (NMI) such as the United States National Institute of Standards & Technology (NIST) in accordance with ASTM Standard E74-18. Instruments were compensated for the effect of temperature on zero and span by the manufacturer(s).

Device: Morehouse Cell Serial: C-8717 Class “A” Range, in Lbs: 500.0 – 25,000

Verified: 30 Aug 2023

Performed By: Tod Phillips

Reviewed By: Roy Nash

Certificate of Verification

This is to certify that the:

Lebow – Interface 20,000Lb Load Cell System
Lebow Load Cell Model: 3157-20K Serial: 1149
Interface Indicator Model: 9840 Serial: 75300
Shunt Cal: 12,790Lbs

COMPRESSION LOADING - NEGATIVE OUTPUT (POSITIVE SHUNT)
“AS FOUND, AS LEFT” – NO ADJUSTMENT

Located At:

Stress Engineering Services
13800 Westfair East Drive
Houston, Texas 77041

Was calibrated on 21 May 2024 according to ASTM Standard E4-21 Annex A1 (verification of a force measuring system out of the test machine). The system was determined to indicate load within the specified 1.0 percent tolerance on the ranges listed below. This Certificate accompanies a Calibration Report which details the specific errors. The maximum error observed was 0.16 percent.

Machine Range, lb:	Loading Range, lb:
20,000	2,000 – 20,000

Ambient temperature recorded during this calibration: 86.1 F

This calibration was performed using equipment verified by Morehouse Instrument Company, Inc. and is traceable to SI through a National Metrology Institute (NMI) such as the United States National Institute of Standards & Technology (NIST) in accordance with ASTM Standard E74-18.

Device:	Serial:	Class “A” Range, in Lbs:	Verified:
Morehouse Cell	C-8717	500.0 – 25,000	30 Aug 2023

Stress Engineering Services, Inc.
13800 Westfair East Dr.
Houston, Texas 77041

21 May 2024
Report No: 45433-1149C
SES PN: 9110305

Performed By: Tod Phillips

Reviewed By: Roy Nash

Attachment 4: Sample Drawing and Material Datasheet



Polypropylene **TI4007G**

Sub-group
Impact Copolymer

Description
Extra high izod impact, superior low temperature drop impact

Applications
Suggested uses include profiles, tubing, squeeze bottles

Process
UL temperature index of 100°C

Control Properties:	ASTM Method	Units	Values
Nominal Melt Flow Rate (230°C/2.16kg)	D-1238	g/10 min	0.7

Typical Properties:	ASTM Method	Units	Values
Tensile Strength at Yield (2 in/min, 50 mm/min)	D-638	psi(MPa)	4,200(29)
Elongation at Yield (2 in/min, 50 mm/min)	D-638	%	12.5
Flexural Modulus (0.05 in/min, 1.3 mm/min, 1% secant)	D-790A	psi(MPa)	175,000(1,207)
Notched Izod Impact Strength at 23°C	D-256A		No Break
Instrumented Impact Strength at -29°C	D-3763	ft-lbs(J)	22(30)
Rockwell Hardness	D-785	R	78

Final Remarks

1. This resin meets the requirements for olefin polymers as defined in 21 CFR, section 177.1520 issued by the Food and Drug Administration. The additives present meet the applicable regulations.
2. This information reflects typical values obtained in our laboratories, but should not be considered as absolute or as warranted values. Only the properties and values mentioned on the Certificate of Quality are considered as guarantee of the product.
3. In some applications, Braskem has developed tailor-made resins to reach specific requirements.
4. In case of doubt regarding utilization, or for other applications, please contact Technical Service.
5. The values in this report can be modified without prior communication from Braskem.
6. Braskem polyolefin products do not have additives with heavy metals or organotin-based materials.

Revision Date:
6/20/2013