GKN AEROSPACE COWES MATERIALS & PROCESSES
SPECIAL PROCESS AUDIT REPORT

AUDIT DETAILS

COMPANY	ELEMENT MATERIALS TECHNOLOGY - CLEVELAND
ADDRESS	5405 E SCHAAF RD, CLEVELAND, OH44134-1337
TIPQA SUPPLIER CODE	ST0058
GKN PRIMARY CONTACT	SHANE RIGBY
TYPE OF AUDIT	DESKTOP / ~~SITE~~
AUDIT DATE	MARCH 2024
ATTENDEE LIST	
AUDITOR(S)	SHANE RIGBY
AUDITEE CONTACT	ANDREW KEARNS

PURPOSE AND OBJECTIVES OF AUDIT
This audit was conducted as part of GKN Cowes' 2024 External Special Process Audit Schedule. The objectives of this audit are to verify Element Materials Technology - Cleveland's capability to undertake the process listed below and ensure conformance to the relevant specification.

SCOPE AND CRITERIA

SPECIFICATION	PROCESS	CONTRACT	COMMENTS
ASTM E112	Standard Test Methods for Determining Average Grain Size	HTF	
ASTM E18	Standard Test Methods for Rockwell Hardness of Metallic Materials	HTF	
ASTM E8/E8M	Standard Test Methods for Tension Testing of Metallic Materials	HTF	

AUDIT FINDINGS

ACTION NUMBER	CRITERIA	DESCRIPTION	CA/IA
-	-	-	-

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CONCLUSIONS

Element Materials Technology - Cleveland have historically been used as a sub-tier processor to Wyman-Gordon Forgings.

Andrew Kearns, Quality Manager at Element, was contacted and confirmed that Element are still process parts for Wyman-Gordon Forgings (however, not currently as a sub-tier for GKN Aerospace), this shows that Element are still currently processing parts and therefore along with the below recognised accreditations are permitted for continuation of their approvals.

This audit has been carried out and approval will be granted based on the Element Materials Technology – Cleveland's A2LA and Nadcap approvals.

APPROVALS

Following this audit, the aforementioned supplier is hereby approved to conduct the following processes, subject to the timely closure of corrective actions:

SPECIFICATION	PROCESS	RESTRICTIONS
ASTM E112	Standard Test Methods for Determining Average Grain Size	
ASTM E18	Standard Test Methods for Rockwell Hardness of Metallic Materials	
ASTM E8	Standard Test Methods for Tension Testing of Metallic Materials	

DISCLAIMER

Please note that any conclusions made as to the compliance of Element Materials Technology – Cleveland to the aforementioned audit scope is based on the conditions at the time of audit, and this audit only evaluates the sample observed.

AUDIT REPORT APPROVAL

ROLE	PRINT NAME	SIGNATURE	DATE
Author	SHANE RIGBY	Shane Rigby Rigby, Shane Digitally signed by Rigby, Shane Date: 2024.03.22 09:49:25 Z	
GKN Primary Contact	SHANE RIGBY	Shane Rigby Rigby, Shane Digitally signed by Rigby, Shane Date: 2024.03.22 09:50:11 Z	
Approval – Processes	MATTHEW WOODFORD	Woodford, Matt Digitally signed by Woodford, Matt Date: 2024.03.22 10:50:18 Z	

CIRCULATION

TipQA
External Special Process folder
Andrew Kearns, Quality Manager, Element Materials Technology – Cleveland

AUDIT OBSERVATIONS

COMMON AUDIT REQUIREMENTS

QUESTION	ANSWER		REMARKS
Does the supplier hold current NADCAP, ISO17025 or other relevant third party approvals? If so record approvals.	**YES**	~~NO~~	Supplier is approved to Nadcap Materials Testing Laboratories (Expiry 30 November), and ISO 17025 approved (Expiry 30 September 2024)
Does the supplier hold current AS9100 approval, or equivalent? If so record approvals.	YES	~~NO~~	See attached
Does the supplier have an internal special process schedule?	**YES**	~~NO~~	This requirement must be met to satisfy Nadcap approvals as above
Does the supplier have an effective corrective action process in place? Review at least one closed corrective action.	~~YES~~	~~NO~~	Corrective action review was not undertaken during this audit.
Does the supplier hold current issues of all applicable processing specifications, including any deviations and WAIS documents?	**YES**	~~NO~~	Supplier approvals are to ASTM specifications only. Check of current issues would have been undertaken for Nadcap/A2LA approvals.

SPECIFIC AUDIT REQUIREMENTS

Nadcap
Administered by PRI

This certificate is granted and awarded by the authority of the Nadcap Management Council to:

Element Cleveland

5405 E Schaaf Rd
Cleveland, OH 44131-1337
United States

This certificate demonstrates conformance and recognition of accreditation for specific services, as listed in www.eAuditNet.com on the Qualified Manufacturer's List (QML), to the revision in effect at the time of the audit for:

Materials Testing Laboratories

Certificate Number: 4344209911
Expiration Date: 30 November 2024
Accreditation Length: 24 Months

Jay Solomond
Executive Vice President & Chief Operating Officer

Performance Review Institute (PRI) | 161 Thorn Hill Road | Warrendale, PA 15086-7527

Accredited Laboratory

A2LA has accredited

ELEMENT CLEVELAND

Cleveland, OH

for technical competence in the field of

Mechanical Testing

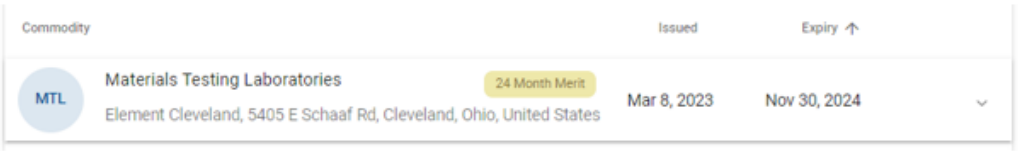
This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of R223 – Specific Requirements – GE Aviation S-400 Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 24th day of August 2022.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0100.01
Valid to September 30, 2024

For the types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.

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Commodity			Issued	Expiry
MTL	Materials Testing Laboratories Element Cleveland, 5405 E Schaaf Rd, Cleveland, Ohio, United States	24 Month Merit	Mar 8, 2023	Nov 30, 2024

AC7000 - AUDIT CRITERIA FOR NADCAP ACCREDITATION
AC7101/1 Rev G - Nadcap Audit Criteria for Materials Testing Laboratories – General Requirements for All Laboratories (to be used on audits BEFORE 10-Dec-2023)
AC7101/2 Rev E - Nadcap Audit Criteria for Materials Testing Laboratories – Chemical Analysis (to be used on audits on/after 30 August 2020)

- Specify the Alloy Base for Accreditation
  - Ti Base
  - Ni Base
  - Mg base
  - Fe Base
  - Cu Base
  - Co Base
  - Al Base
- (W) Atomic Absorption
  - (W2) Graphite Furnace (GFAA)
- (S) X–Ray Fluorescence (XRF)
- (G) Elemental Analysis (Combustion or Fusion)
  - (G5) Sulfur
  - (G4) Oxygen
  - (G3) Nitrogen
  - (G2) Hydrogen
  - (G1) Carbon
- (F) Atomic or Optical Emission Spectroscopy (AES or OES)
  - (F3) Atomic Emission Spectroscopy – Spark/Arc (S/A–OES)
  - (F2) Atomic Emission Spectroscopy – Inductively Coupled Plasma (ICP–OES/AES)

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AC7101/3 Rev D - Nadcap Audit Criteria for Materials Testing Laboratories – Mechanical Testing (to be used on audits on/after 4 December 2016)

- (XN) Bend Testing
- (XA) Creep
- (P) Fracture Toughness
- (N) Impact
- (C) Stress Rupture
- (B) Elevated Temperature Tensile
- (A) Room Temperature Tensile

AC7101/4 Rev F - Nadcap Audit Criteria for Materials Testing Laboratories – Metallography and Microindentation Hardness (to be used on/after 14 August, 2016)

- (XL) Macro Examination
- (L9) Near Surface Examinations – Alpha Case: Cast Titanium
- (L8) Near Surface Examinations – Alpha Case: Wrought Titanium
- (L7) Near Surface Examinations – IGA, IGO
- (L6) Near Surface Examinations – Nitriding
- (L5X) Near Surface Examinations – Microindentation (Surface) (Chord Method ARP1820)
- (L5) Near Surface Examinations – Microindentation (Surface–Case Depth)
- (L3) Near Surface Examinations – Oxidation/Corrosion
- (L2) Near Surface Examinations – Alloy Depletion
- (L12) Inclusion Rating

- (L11) Grain Size
- (L10) Near Surface Examinations – Carburization / Decarburization
- (L1) Microindentation (Interior)
- (L0) Metallographic Evaluation

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AC7101/5 Rev D - Nadcap Audit Criteria for Materials Testing Laboratories – Hardness Testing (Macro) (to be used on audits BEFORE 07-May-2023)

- (M2) Rockwell Hardness
- (M1) Brinell Hardness

AC7101/6 Rev D - Nadcap Audit Criteria for Materials Testing Laboratories – Corrosion (to be used on/after 1 July 2018)

- (Q1) Detecting susceptibility to intergranular attack in austenitic stainless steel
  - (Q1–4A) Copper–Copper Sulfate– 16% Sulfuric Acid Test "Strauss test" (bend test)
  - (Q1–1) Oxalic Acid Etch Test

AC7101/7 Rev D - Nadcap Audit Criteria for Materials Testing Laboratories – Mechanical Testing Specimen Preparation (to be used on audits on/after 15 May 2016)

- (Z3) Cast Specimens
- (Z) Standard Specimen Machining

AC7101/9 Rev C - Nadcap Audit Criteria for Materials Testing Laboratories – Specimen Heat Treating (to be used on/after15 January 2017)
AC7110/13 Rev B - Nadcap Audit Criteria for Evaluation of Welds (to be used on audits BEFORE 05-May-2024)

- NOTE: IF YOU ARE SELECTING THE AC7110/13 CHECKLIST YOU MUST ALSO SELECT AC7101/4 – Nadcap Audit Criteria for Materials Testing Laboratories – Metallography and Microhardness. You must also select AC7110/13S
  - Supplement C – Metallurgical Evaluation of Electron Beam / Laser Welds (identify if this process is used)
  - Supplement B – Metallurgical Evaluation of Fusion Welds (identify if this process is used)
  - Supplement A – Metallurgical Evaluation of Welder / Welding Operator Qualifications (identify if this process is used)

AC7110/13S Rev D - Nadcap Supplemental Audit Criteria for Evaluation of Welds to be used on audits ON OR AFTER 11 January 2015)

- U2 Pratt & Whitney
- U10 GE Aviation

Lab Type - Lab Type

- Independent