

CRQPS614\_20161123

<b>Nom du Fournisseur</b> <i>Supplier</i>	ELEMENT MATERIALS TECHNOLOGY CHARLOTTE	<b>Code fournisseur</b> <i>Supplier number</i>	AQPS614/MDM502437
<b>Adresse / Address :</b>	1200 SUITE A WESTINGHOUSE BVLVD, CHARLOTTE, NORTH CAROLINA 28273, USA		
<b>Activité Fournisseur</b> <i>Supplier Activities</i>	Independant Laboratory		
<b>Contact fournisseur</b> <i>Supplier contact</i>	<b>Nom /Name</b> Charles BEASLEY	<b>Fonction / Title:</b>	Quality Assurance Manager
	<b>Adresse email / Email address :</b> charles.beasley@element.com		
<b>Nature Audit</b> <i>Audit Purpose</i>	<b>Sur site</b> <i>On-site audit</i> <input checked="" type="checkbox"/>	<b>Sur Dossier(DQ)</b> <i>On DQ</i> <input type="checkbox"/>	<b>Date :</b> 17 – 20 Octobre 2016
	<b>Evaluation</b> <i>Evaluation</i> <input type="checkbox"/>	<b>Renouvellement</b> <i>Re-Approval</i> <input checked="" type="checkbox"/>	<b>Qualification initiale</b> <i>Approval</i> <input type="checkbox"/>
		<b>Surveillance</b> <i>Folow up</i> <input type="checkbox"/>	<b>Autre*</b> <i>Other</i> <input type="checkbox"/>
	*Si Autre préciser <i>If other detail :</i> -		
<b>Thème Audit</b> <i>Scope of Audit</i>	Mechanical, Metallurgical and Chemistry evaluations.		

Equipe audit & audités / <i>Audit staff &amp; auditees</i>				
Fonction	Nom	Safran	Fournisseur	Catégorie de l'auditeur Safran <sup>(1)</sup>
<i>Title</i>	<i>Name</i>		<i>Supplier</i>	<i>Safran auditor level</i>
Auditor	Bruno LOPES	X	-	Safran
Quality Assurance Manager	Charles BEASLEY	-	X	-

(1) Support Nadcap, Safran, société, en formation / *Nadcap support, Safran, society, in progress*

Spécification(s) de l'audit / <i>Audit Specification</i>	
<b>Référentiels techniques Safran / <i>Safran Technical Specification</i></b>	DMC0250; DMC0253; DMC0257; DMC0090; DMC0095; DMD04xx; DMD07xx.
<b>Autres référentiels / <i>Other specification</i></b>	ISO17025 - 2005

Procédés et n°PS <i>Process and PS n°</i>	Identification des installations <i>Facility identification</i>	Référentiel Technique <i>Technical specifications</i>	Accréditation NADCAP <sup>(2)</sup> <i>Nadcap accreditation</i>	Décision <sup>(3)</sup>	Si restrictions ou surveillance référence du paragraphe
A 8.02.00.01	Essai de traction à température ambiante / Tensile test at room temperature	ASTM E8	A	Qualified	-
B 8.02.00.02	Essai de traction à température élevée/ Tensile test at elevated temperature	ASTM E21	A	Qualified	-
C 8.02.00.04	Essai de fluage rupture / Stress rupture test	ASTM E139	A	Qualified	-
H 8.00.00.04	Dosage du Soufre / Sulfur Analysis	ASTM E1019	A	Qualified	-
I 8.00.0005	Dosage de l'hydrogène / Hydrogen Analysis	ASTM E1447	A	Qualified	-
L1a 8.03.00.01	Détermination de la taille de grains / Grain size determination	ASTM E112 DMC0090	A	Qualified	DMC0250
L1e 8.03.00.99	Micrographie optique autres / Other metallographic optical	DMC0090	A	Qualified	DMD04xx DMD07xx
L1e 8.03.00.99	Micrographie optique autres / Other metallographic optical	DMC0090	-	Qualified	DMC0253 DMC0257
L1e 8.03.00.99	Micrographie optique autres / Other metallographic optical	DMC0090	-	Qualified	Analyse sur réplique Replica Analysis
L1g 8.03.00.05	Taux de phase (alpha sur titane - ferrite sur acier) / Phase Level (alpha on titanium - ferrite on steel)	Internal procedure	A	Qualified	Alpha sur Titane Alpha on Titanium
L2a 8.03.00.18	Examens micrographiques et fractographiques MEB / SEM metallographic and fractographic inspections	Internal procedure	A	Qualified	-
L2b 8.03.00.19	Micro-analyse X / Micro-analysis X	Internal procedure	A	Qualified	-
M1 8.02.00.17	Essai de dureté HB / Hardness test HB	ASTM E10	A	Qualified	-
M2 8.02.00.18	Essai de dureté HV / Hardness test HV	ASTM E384	A	Qualified	-
M3 8.02.00.19	Essai de dureté HR / Hardness test HR	ASTM E18	A	Qualified	-

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XA 8.02.00.05	Essai de fluage allongement / Elongation creep test	ASTM E139	A	Qualified	-
XG 8.01.00.04	Traitement thermique des éprouvettes / Heat treatment of test pieces	AMS2750	A	Qualified	-
XL3 8.03.00.16	Autres examens macrographiques / Other macrographic examinations	DMC0095	A	Qualified	DMD04xx DMD07xx
Z2 8.01.00.02	Usinage des éprouvettes sur matériaux métalliques, hors fatigue / Others than fatigue metallic materials test pieces machining	DMC0100	A	Qualified	-
J 8.00.00.06	Dosage de l'azote / Nitrogen Analysis	ASTM E1019	A	Removed	-
L1b 8.03.00.02	Taux d'inclusion/ Inclusion rate	ASTM E45	A	Removed	-
L4 8.03.00.13	Microdureté (<300g) / Microhardness (<300g)	ASTM E384	A	Removed	-

(2) : A = Accrédité, E = Engagé, R = Refusé / A=Accredited, E=Engaged, R=Refused

(3) : Qualifié, Refusé, Suspendu, Qualifié provisoirement, Qualifié avec restriction(s), Autorisé avec surveillance / Qualified, Failed, temporary qualified, qualification with technical restriction(s), authorized with enhanced monitoring

Bilan des écarts et observations		
Majeur(s) / Major : -	Mineur(s) / Minor : 1	Recommandations / Preventives : 2

Fournisseur / Supplier			Représentant Safran / Safran representative		
Date : 29/11/16	Nom : C. Beasley	Visa : <i>Charles A. Beasley</i>	Date :	Nom : B. LOPES	Visa : <i>B. Lopes</i>

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Produits étudiés pendant l'audit <i>Product aim of the audit</i>	
No specific product. Audit has been conducted with production ongoing test specimens for Safran AE applications	
Points Forts <i>Positive points</i>	Points Faibles <i>Weak points</i>
Motivation de la décision <i>Roots of the decision</i>	
A	<b>Essai de traction à température ambiante / Tensile test at room temperature</b>
	<p>Practice of the test is satisfactory; the test specimen is rechecked by the operator before testing. Punch mark is used to perform the measurement of the elongation.</p> <p>After testing technician do not use the "fixture" available to re-do the broken test sample. Measurement of the diameter and the elongation after testing has been done by handling the broken test specimen.</p> <p>Pr-1: In spite the availability of the fixture, the technician should use it to perform the measurement after testing. Moreover, the fixture has also to be improved in order to guarantee a good position of both parts of the tensile test.</p> <p>After testing the traceability is guarantee.</p>
B	<b>Essai de traction à température élevée/ Tensile test at elevated temperature</b>
	<p>Practice of the test is satisfactory; the soak time before testing is in accordance with standard practice. Type K thermocouples are well follow into the quality system and well identified. After testing, the measurement of the broken sample was done with the same fixture as the one used at the Room Temperature Tensile test.</p> <p>Pr-1: In the same way, the fixture has to be improved.</p> <p>Obs : measurement equipment used do not have all the same accuracy. Micrometer NJ-28B has 5 digits (before testing) and caliper used after testing has 4 digits. In order to be homogeneous, measurement reported should have the same number of digits (4).</p>
C	<b>Essai de fluage rupture / Stress rupture test</b>
	Practice of the test is satisfactory. No specific remarks.
H	<b>Dosage du Soufre / Sulfur Analysis</b>
	Standard used for the calibration conform to the limits of the requirements. Good practice of the test.
I	<b>Dosage de l'hydrogène / Hydrogen Analysis</b>
	Standard used for the calibration conform to the limits of the requirements. Good practice of the test.
J	<b>Dosage de l'azote / Nitrogen Analysis</b>
	<b>As agree with Element staff, this code is removed from the AQPS. No orders.</b>
L1a	<b>Détermination de la taille de grains / Grain size determination</b>
	Practice of the test is satisfactory. Technician doing evaluation during the audit is Safran AE approved (Andrew GREENFIELD). Reporting results is also very satisfactory; all of the data are available. Remark done during the last audit about the identification of operator has been take into account on the evaluation report.
L1b	<b>Taux d'inclusion/ Inclusion rate</b>
	Practice of this test on Safran AE product seems to be not asked by the suppliers. We have verified the test methodology on method A and it I well known.
	<b>As agree with Element staff, this code is removed from the AQPS. No orders.</b>
L1e	<b>Micrographie optique autres / Other metallographic optical</b>
	Evaluations of the microstructures are acceptable. No specific remarks DMC0250
L1e	<b>Micrographie optique autres / Other metallographic optical</b>
	Technician in charge of this evaluation is approved by Safran AE. DMC0253 and DMC0257 evaluation
L1e	<b>Micrographie optique autres / Other metallographic optical</b>
	Qualities of the replica are acceptable and permit an evaluation of the metallurgy. Element Charlotte has trained people to perform replica preparation and they are at the Midway location. Practice is acceptable because technicians at Midway only perform the replica preparation and the metallurgical evaluation is done at Charlotte.
L1g	<b>Taux de phase (alpha sur titane - ferrite sur acier) / Phase Level (alpha on titanium - ferrite on steel)</b>
	Practice of the test is satisfactory. Evaluation of the Alpha content is done by Image Analysis. For a sample, an average on 5 points is done. Traceability of each measurement is saved on the report.

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L2a	Examens micrographiques et fractographiques MEB / SEM metallographic and fractographic inspections	Not review during the audit – Qualification has been delivered on August 2015.
L2b	Micro-analyse X / Micro-analysis X	Not review during the audit – Based on the Nadcap Accreditation
L4	Microdureté (<300g) / Microhardness (<300g)	As agree with Element staff, this code is removed from the AQPS. No orders.
M1	Essai de dureté HB / Hardness test HB	Practice of the test is satisfactory. No specific remarks.
M2	Essai de dureté HV / Hardness test HV	Not review during the audit - Based on the Nadcap Accreditation and on the practice of the Brinell test.
M3	Essai de dureté HR / Hardness test HR	It was not possible to do a test on the equipment due to a problem on it. However we have assist on a daily check and it was done in accordance with the requirements.
XA	Essai de fluage allongement / Elongation creep test	Practice of the test is satisfactory. No specific remarks.
XG	Traitement thermique des éprouvettes / Heat treatment of test pieces	Not review during the audit – Based on the Nadcap Accreditation.
XL3	Autres examens macrographiques / Other macrographic examinations	Macroetch slices review during the metallurgical cotation show a good preparation and etching.
Z2	Usinage des éprouvettes sur matériaux métalliques, hors fatigue / Others than fatigue metallic materials test pieces machining	Specimens are checked internally. Drawings used are the ones specified into the Cut-up plan which refer Safran AE drawings (DMC0100). Use of ASTM standards drawings is acceptable for Safran AE.
Pièces Jointes / Attachments :		
-		

<b>Observations éventuelles Fournisseurs</b> <i>Supplier Remarks</i>	
	
Supplier Signature ( si observations /if remarks only)	

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Eléments analysés <i>Items reviewed</i>			
1	P/O : FIR0011-01-027531	5	-
2	Personnel File/ Brian BECERRA	6	-
3	SOP50.36 : Determining Average Grain Size	7	-
4	Corporate Round Robin (Brinell Hardness)	8	-

Tableau des écarts <i>Deviation table</i>						
N° de l'écart <i>Deviation n°</i>	Niveau <sup>(4)</sup> <i>Level</i>	Procédé <i>Process</i>	Description de l'écart <i>Non Conformance Report Responsible</i>	Responsable <i>Responsible</i>	Délai <i>Time limit</i>	Statut <i>Status</i>
20009154	m	-	A Schedule for the entire test approved by Safran AE into AQPS is not available. Moreover the cycle for internal audit is higher than 1 year. During the audit, we have look for the "Methods Audits" done for the last 3 years (from 2014 to 2016), and all of the test code were not covered.	C. Beasley	18 nov. 2016	Closed

Tableau des Recommandations <i>Preventives table</i>		
N° de la recommandation <i>Preventive n°</i>	Procédé <i>Process</i>	Description <i>Description</i>
1	A/ B	In spite the availability of the fixture, the technician should use it to perform the measurement after testing. Moreover, the fixture has also to be improved in order to guarantee a good position of both parts of the tensile test.
2	-	On the skill matrix there is not a specific identification of the technician(s) approved for DMC evaluations. We ask to Element Charlotte to implement it on his skill matrix.

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- 1) Contexte / Context  
The audit conducted was done for the renewal of the qualification.
- 2) Résultats de l'audit système / Results of the System Audit **(Based on the ISO17025-2005)**

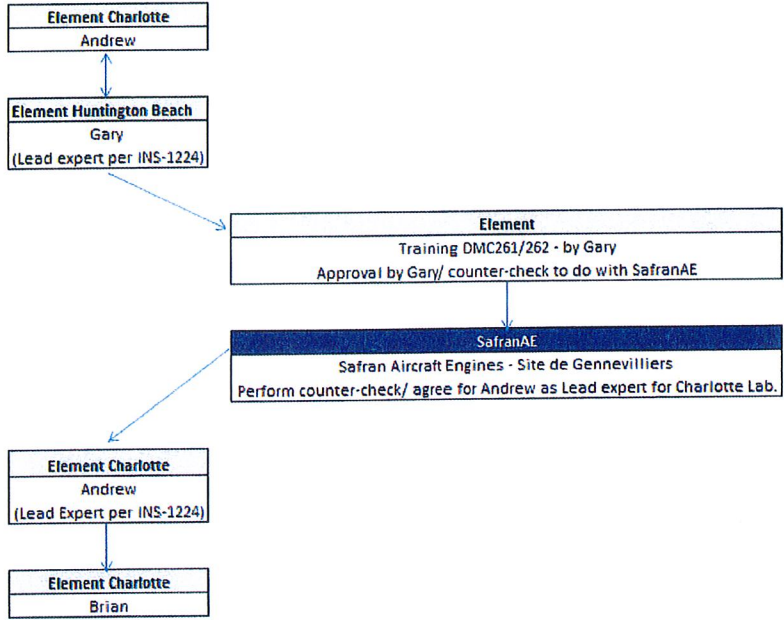
<b>§ 4.2 : Management requirements</b>	Not review during the audit – Based on the Nadcap Accreditation.																																
<b>§ 4.3 : Document control</b>	Not review during the audit – Based on the Nadcap Accreditation.																																
<b>§ 4.4 : Review of requests, tenders and contracts</b>	Purchase order sent by the customer defines the requirements for the evaluation. Safran AE documentation is referenced and it is available at the Laboratory.  All of the jobs files are scanned/ registered and available by the internal software.																																
<b>§4.5 : Subcontracting</b>	No subcontracting identified by the Laboratory.																																
<b>§4.7 : Service to customer</b>	Review during the "Management Review" presentation.																																
<b>§4.8 : Complaints</b>	Review during the "Management Review" presentation.																																
<b>§ 4.11 : Corrective Action</b>	Not review during the audit – Based on the Nadcap Accreditation.																																
<b>§4.13 : Control of records</b>	Not review during the audit – Based on the Nadcap Accreditation.																																
<b>§ 4.14 : Internal audits</b>	<p>There are two levels of audits. The first one, considered as "internal Audit" is done by Quality auditors from Element Corporate. It is done following ISO17025. Second level of audits, considered as "Methods Audit" is done by Element Charlotte on the SOP.</p> <p><u>ISO17025 §4.14- Internal audits:</u></p> <p><i>"4.14.1 The laboratory shall periodically, and in accordance with a predetermined schedule and procedure, conduct internal audits of its activities to verify that its operations continue to comply with the requirements of the management system and this International Standard. The internal audit programme shall address all elements of the management system, including the testing and/or calibration activities. It is the responsibility of the quality manager to plan and organize audits as required by the schedule and requested by management. Such audits shall be carried out by trained and qualified personnel who are, wherever resources permit, independent of the activity to be audited.</i></p> <p><i>NOTE The cycle for internal auditing should normally be completed in one year."</i></p> <p><b>CAR: A Schedule for the entire test approved by Safran AE into AQPS is not available. Moreover the cycle for internal audit is higher than 1 year. During the audit, we have look for the "Methods Audits" done for the last 3 years (from 2014 to 2016), and all of the test code were not covered.</b></p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Test Code</th> <th>2016</th> <th>2015</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Done</td> <td>Done</td> <td>Done</td> </tr> <tr> <td>B</td> <td>Done</td> <td>Done</td> <td>Done</td> </tr> <tr> <td>C</td> <td>Done</td> <td>Done</td> <td>Done</td> </tr> <tr> <td>H</td> <td>Schedule</td> <td>Done</td> <td>Not Done</td> </tr> <tr> <td>I</td> <td>Not Schedule</td> <td>Done</td> <td>Done</td> </tr> <tr> <td>J</td> <td>Not Schedule</td> <td colspan="2">Equipement out of order</td> </tr> <tr> <td>L1a</td> <td>Done</td> <td>Done</td> <td>Done</td> </tr> </tbody> </table>	Test Code	2016	2015	2014	A	Done	Done	Done	B	Done	Done	Done	C	Done	Done	Done	H	Schedule	Done	Not Done	I	Not Schedule	Done	Done	J	Not Schedule	Equipement out of order		L1a	Done	Done	Done
Test Code	2016	2015	2014																														
A	Done	Done	Done																														
B	Done	Done	Done																														
C	Done	Done	Done																														
H	Schedule	Done	Not Done																														
I	Not Schedule	Done	Done																														
J	Not Schedule	Equipement out of order																															
L1a	Done	Done	Done																														

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		L1b	Schedule	Not done	Done
		L1e	Schedule	Not done	Done
		L1g	Not check	Not check	Not check
		L2a	Schedule	Extension	N/A
		L2b	Not Schedule	Extension	N/A
		L4	Done	Done	Done
		M1	Schedule	Done	Done
		M2	Done	Done	Done
		M3	Schedule	Done	Done
		XA	Not Schedule	Done	Done
		XG	Schedule	Done	Not Done
		XL3	Schedule	Done	Done
		Z2	Partially	Partially	Done
	<p>For information:</p> <p>In case of a Laboratory is not ISO17025 approved, Nadcap checklist applied is the AC7006 - §14.4</p> <p>"The laboratory shall periodically, and in accordance with a predetermined schedule and procedure, conduct internal audits of its activities to verify that its operations continue to comply with the requirements of the management system and ISO/IEC17025:2005. The internal audit program shall address all elements of the management system, including the testing and/or calibration activities. It is the responsibility of the quality manager to plan and organize audits as required by the schedule and requested by management. Such audits shall be carried out by trained and qualified personnel who are, wherever resources permit, independent of the activity to be audited.</p> <p><b>The Quality Manual shall have a section addressing Internal Audits. Annual internal audits of all testing activities are required. A yearly schedule, noting each test method and the month in which the internal audit of that method shall be conducted, must be maintained. Internal audits must include all provisions of ISO/IEC 17025:2005.</b></p> <p><i>NOTE The cycle for internal auditing should normally be completed in one year."</i></p>				
§ 4.15 : Management review	Done once per year as required by ISO17025. All of the Laboratory activity is review including "service to customer".				
§5.2 : Personnel	<p>All of the operators seen during the audit have a good knowledge of the test.</p> <p><u>DMC0250 qualification/ new technician:</u></p> <p>A second technician has been identified to perform DMC0250 evaluation. As this DMC requires a qualification it is acceptable for Safran AE that the training (theoretical/ practice) should be done by the approved technician. When the new technician will satisfy the requirements, a letter will have to be send to the following address in order to input this persons into the Safran AE approved technician. The training evidence should be attached to the letter.</p> <p>Contact :</p> <p>Safran Aircraft Engines – Site de Gennevilliers        Attn : Bruno Lopes / Laboratoire - YQGM        171 boulevard de Valmy BP31        92702 Colombes cedex – France</p>				

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	<p><u>DMC0261/DMC0262 qualification :</u></p> <p>Safran AE agrees to authorize Lead expert at Element Huntington Beach to train technician from Element Charlotte. When the lead expert estimate that the training satisfy to Safran AE requirement, a cross test will have to be done with Safran AE to complete the training and to be able to qualify new technician as Lead expert for Element Charlotte.</p>  <pre> graph TD     A["Element Charlotte Andrew"] &lt;--&gt; B["Element Huntington Beach Gary (Lead expert per INS-1224)"]     B --&gt; C["Element Training DMC261/262 - by Gary Approval by Gary/ counter-check to do with SafranAE"]     C --&gt; D["SafranAE Safran Aircraft Engines - Site de Gennevilliers Perform counter-check/ agree for Andrew as Lead expert for Charlotte Lab."]     D --&gt; E["Element Charlotte Andrew (Lead Expert per INS-1224)"]     E --&gt; F["Element Charlotte Brian"]     </pre> <p>Pr-2: On the skill matrix there is not a specific identification of the technician(s) approved for DMC evaluations. We ask to Element Charlotte to implement it on his skill matrix.</p>
<p><b>§5.3 : Accommodation and environmental conditions</b></p>	<p>The entire laboratory is under Air Conditioning. Workstations are satisfactory.</p>
<p><b>§5.4 : Test and calibration methods</b></p>	<p>SOP's are all available into internal system. Technicians were all able to find it into the system.</p>
<p><b>§5.5 : Equipment</b></p>	<p>Each equipment is well identified and has is sticker (when needed) showing the calibration due date.</p>
<p><b>§5.6 : Measurement traceability</b></p>	<p>All of the data are achieved and available.</p>
<p><b>§5.9 : Assuring the quality of test</b></p>	<p>For all of the test code, there is multiple control to assure the quality of the test (tensile = measurement done by operator before testing to verify the caliper; chemistry = use of standard and also quality check samples).</p>
<p><b>§5.10 : Reporting results</b></p>	<p>All the results are put into internal software. Results are available by internet for the customers with a specific pass code.</p>

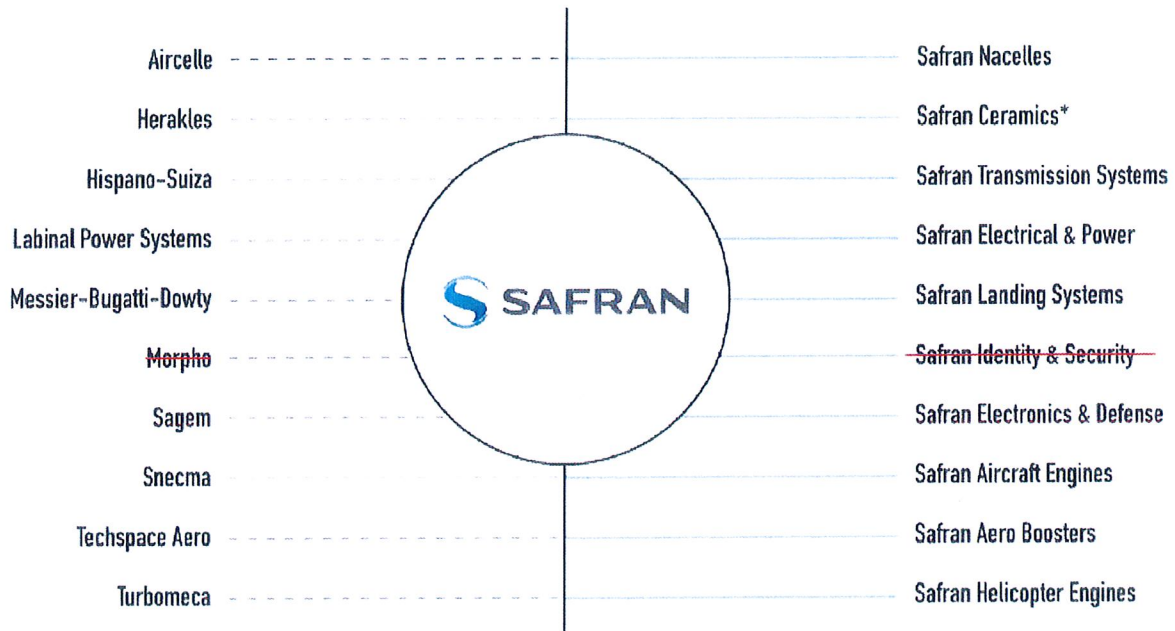


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Miscellaneous

Safran's group has changed the name of all the companies.  
Here below the new names.



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