General Regulations

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Contents

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General Regulations:

Definitions

QN	Qualanod; Association for Quality Control in the Anodizing Industry, Zurich as defined in clause 5.11 of the Qualanod Specifcations. QN includes its secretariat and committees: EC means Qualanod executive committee TC means Qualanod technical committee EWG means the evaluation working group constituted by the EC AWG means the appeals working group constituted by the EC QN supervises the general licensees and may take on more or less responsibility depending on the resources of any general licensee.
GL	General licensee as defined in clause 5.4 of the Qualanod Specifications
SL	sub-licensee, sub-licence holder as defined in clause 5.17 of the Qualanod Specifications
TI	Testing institute as defined in clause 5.18 of the Qualanod Specifications
PL	prospective sub-licensee including when an existing licensee wants to use the label for one or more additional licensable products.
CAP	Corrective action plan as defined in clause 5.2 of the Qualanod Specifications
Applicant	may be the manufacturer or a supplier of a new process, or an SL that wants to use the new process.
“In writing”	correctly addressed email or by correctly stamped and addressed letter.

1 Procedure for carrying out inspections of anodizing plants

1.1 Procedures

The procedures below assume that the TI nominates the inspectors. However, if the GL is accredited to ISO/IEC 17065, it may nominate inspectors. In such cases, the procedures should be read accordingly. The procedures may be applied to SLs and PLs.

The clauses and sub-clauses referred to below are those of the Specifications unless stated otherwise.

All information concerning the inspection results and their assessment shall be confidential.

1.1.1 Responsibilities

1. The TI nominates a suitably qualified individual who has been approved by QN, referred to as the inspector, to carry out the inspection.
2. QN maintains and issues to GLs the inspection report form to be used by inspectors.
    a. GLs ensure that TIs have the most up-to-date inspection report medium.
3. The GL notifies the TI which licensable products are to be covered by the inspection (see clause 8).
4. The inspector takes to all inspections the minimum mandatory equipment as shown in the table below.

Minimum mandatory equipment of inspectors

<table>
<tr><th colspan="2">TESTS</th><th>EQUIPMENT</th></tr>
<tr><td colspan="2">All types of anodizing
THICKNESS</td><td>Apparatus + references</td></tr>
<tr><td colspan="2">Architectural, industrial (unless sealing tests are not required by the customers) and decorative anodizing
SEALING (destructive)</td><td>MASS LOSS</td><td>Two calibrated weights for checking analytical balance</td></tr>
<tr><td rowspan="2">SEALING (non-destructive)</td><td>ANOTEST if required</td><td>References</td></tr>
<tr><td>DYE SPOT if required</td><td>Dye solution for the test providing its carriage is allowed by the airport security control
ISO 2143 chart</td></tr>
<tr><td colspan="2">Architectural anodizing
SURFACE ABRASION TEST if required</td><td>• Glass-coated abrasive paper previously validated using type P and type F standard specimens*
• Resilient support for the paper, e.g. rubber
• Type P and type F standard specimens*</td></tr>
<tr><td colspan="2">Architectural, industrial (unless sealing is not required by the customers) and decorative anodizing
pH METER</td><td>Buffer solutions or pre-calibrated pH meter</td></tr>
<tr><td colspan="2">All types of anodizing
SPECIFICATIONS AND TESTING PROCEDURES</td><td>Latest version of the Specifications and all update sheets</td></tr>
<tr><td colspan="3">* Standard specimens are specimens of anodized aluminium produced using special conditions. Type P standard specimens pass the abrasion test while type F standard specimens fail the abrasion test. Qualanod can provide information on sourcing standard specimens.</td></tr>
</table>

5. The inspector carries out the inspection and completes the inspection report including the inspector's conclusions which the SL or PL also signs and may add comments. References for the processes of an inspection are shown by the table below as the relationships between the inspection report form, and the main clauses and appendices of the Specifications. Main references are shown in bold italic font. See below for the procedure to inspect anodized products.

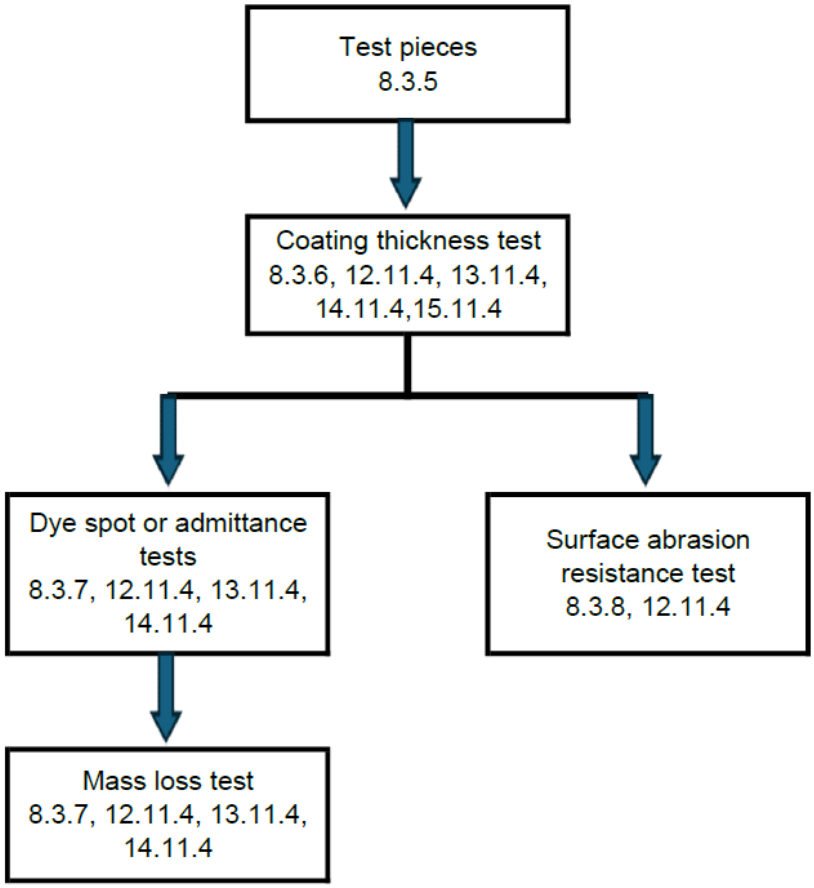
The relationships between the inspection report form, and the main clauses, and appendices of the Specifications

Inspection report	Specifications main clauses	Specifications appendices X = 12, 13, 14 or 15
The current inspection visit	6 Licensing anodizers	
General	8 Inspections	X.11 Inspections
Agreement with the customer	8.3.3 Agreements with customers 8.3.10 Register of complaints	***X.4 Agreements with customers*** X.5 Complaints
Processes of anodizing plants	8.4 Inspection of processes and procedures	X.11.5 Processes ***X.8 Requirements concerning processes*** X.9.5 Storage of products
Laboratory and testing equipment	8.3.4 Laboratory	***X.6 Laboratory and testing apparatus***
In-house control	8.3.9 In-house control	***X.9 Methods for process control*** ***X.10 Production control records***
Inspection of anodized products	***8.3 Inspection of products***	***X.11 Inspections***
Labelling	8.3.2 Use of the quality label ***7 Regulations for the use of the quality label***	X.3 Quality label
Conclusions	6.1.3 Inspections	***X.11.2 Nonconformities***

6. The validation test for the licensee's glass-coated abrasive paper involves carrying out the manual surface-abrasion test using standard specimens but with the licensee's paper and resilient support. If the paper is valid, type P standard specimens pass the test and type F standard specimens fail the test. Otherwise, the paper is not valid.

1.1.2 Procedure to inspect anodized products

The flow diagram below shows relevant sections of the Specifications. Note that sealing tests are not required for hard anodizing.



2 Procedure for applications from prospective sub-licensees

2.1 Procedures

The procedures below assume that the TI nominates the inspectors. However, if the GL is accredited to ISO/IEC 17065, it may nominate inspectors. In such cases, the procedures should be read accordingly.

The clauses referred to below are those of the Specifications unless stated otherwise.

All information concerning inspection results and their assessment shall be confidential.

2.1.1 Responsibilities

1. GL receives the application and verifies that sufficient information has been provided. The GL and PL agree the licensable products for which the PL seeks to use the label.
    a. If a previous application for a sub-licence was unsuccessful, a new application cannot be accepted until six months have elapsed.
    b. If a previous application for a licensable product was unsuccessful, a new application for that licensable product cannot be accepted until six months have elapsed.
    c. If a previous sub-licence was withdrawn or could not be renewed, a new application cannot be accepted until three months have elapsed.
2. GL designates the TI responsible for inspections.
3. GL informs PL of the costs of a sub-licence and the contact details of the designated TI and asks for confirmation of the application.
    a. GL receives confirmation from PL.
4. If requested by the PL, the GL asks the TI to carry out a preliminary visit.
    a. The TI carries out the preliminary visit and reports the results to the PL and GL (the results cannot be used for granting a sub-licence).
5. If GL and PL agree to continue the application, GL notifies QN of the application and designated TI.
6. Upon request by the GL, the Qualanod Secretariat establishes an account for the PL in the Qualanod database, using the company data and contact information provided by the GL.
7. GL instructs the TI to carry out inspections for the agreed licensable products by following diagram A of the *Specifications* clause 6 and the *General Regulations I - Procedure for carrying out inspections of sub-licensees' plants*. **It is not necessary for each licensable product to be dealt with at a separate visit to the plant.**
8. TI carries out inspections as instructed by GL. The testing institute and inspector follow the steps stipulated by the Qualanod database for planning the inspection visit.
    a. TI agrees date of first inspection visit with PL to ensure that responsible persons of the plant are present.
    b. TI carries out subsequent inspection visits unannounced unless other arrangements are approved by QN according to clause 6.2.2 of the Qualanod Specifications.
9. The inspector records the results of the inspection visit in the Qualanod database, completely filling in the inspection report form as provided in the Qualanod database.

a. At the end of the inspection visit, the inspector's conclusions (identifying nonconformities, issues and required CAPs as applicable) are signed off by both the inspector and the PL, which may add comments.

10. After completing the report with all required test results, the inspection report is submitted to the general licensee via the Qualanod database.
11. The general licensee assesses the inspection report as described in clause 6.2.3 of the Qualanod Specifications.
12. The GL gives its decision in the database as to whether it recommends (individually for each licensable product) that the inspection report should be evaluated as satisfactory or not by the Qualanod Secretariat.
13. The GL forwards the inspection report to the Qualanod Secretariat via the Qualanod database.
14. The Qualanod Secretariat assesses the inspection report and the information given by the GL as described in clause 6.2.3 of the Qualanod Specifications.
15. The Qualanod Secretariat decides whether the inspection of each licensable product has been evaluated as satisfactory or not and records its decision with reasons in the Qualanod database. As applicable, it may add remarks to the testing institute / the inspector.
16. The decision of the Qualanod Secretariat is communicated to the GL via the Qualanod database. The GL informs the PL about the decision and informs the testing institute / the inspector about remarks added by the Qualanod Secretariat as applicable.
17. The PL may appeal the decision within 10 working days after having been informed by the general licensee. Such appeal shall provide detailed reasons and shall be directed to the GL.
18. The GL forwards the appeal to the Qualanod Secretariat for decision by the Qualanod Label Committee. The decision of the Label Committee is final.
19. After an unsatisfactory or partially satisfactory inspection visit, another inspection visit can be made only when the anodizing plant has given notification to the general licensee that it has rectified the nonconformities recorded. The general licensee informs the testing institute of the receipt of the notification or, if the general licensee is accredited to ISO/IEC 17065, it informs the inspector.
20. After an unsatisfactory or partially satisfactory inspection visit, the anodizing plant may withdraw its application for a licence for one or more licensable products. In such circumstances, it shall notify the general licensee by written communication. The general licensee informs the testing institute or, if the general licensee is accredited to ISO/IEC 17065, it informs the inspector.
21. Upon decision by the Qualanod Secretariat, the PL can be granted a licence if at least two inspections are satisfactory for each licensable product for which the PL seeks to use the label.
22. Before a licence is granted, the general licensee and the PL sign the contract provided by QN and the anodizing plant pays the licence fee.
23. If a licence cannot be granted, the anodizing plant shall not make a new application for a licence until at least six months have elapsed. If a licence cannot be granted for a licensable product, the anodizing plant shall not make a new application for a licence for that licensable product until at least six months have elapsed.
24. GL notifies QN that the contract has been signed and informs if the licence fee has been paid.
    a. If PL is up to date in the payment of sub-licence fees, QN issues to it a sub-licence certificate or a modified certificate as appropriate.
    b. QN adds PL's details to the register of sub-licensees and the list on the website.

Sample Sub-Licence Agreement concerning the Qualanod Quality Label

Between ..... (General Licence Holder, GL) domiciled in ..... as holder of the General Licence for the Qualanod quality label and authorized to utilize the label by issuing sub-licences and

..... in .....

(hereinafter the "sub-licensee")

The following agreement was reached today.

1. The sub-licensee states that he possesses copies of and is acquainted with the contents of the "Specifications for the Qualanod quality label for sulphuric acid anodizing of aluminium" hereafter referred to as the Specifications, and particularly the clause "Regulations for use of the quality label" hereafter after referred to as the Regulations.

The sub-licensee hereby undertakes

a) not to use the said label, either themselves or through their representatives, for licensable products other than those listed in the sub-licence according to the Regulations;
b) to permit the testing or examination of his products and/or to supply the samples necessary under the clauses “Licensing anodizers” and “Inspections” in the Specifications;
c) to comply with the Regulations and Specifications in every respect;
d) in the event that production of the goods falling under the sub-licence is discontinued the GL shall be informed at once;
e) to report all changes of name or address promptly to the GL;
f) to report immediately to the GL any contravention or any unauthorized or incorrect use of the label which comes to his notice and to cooperate with the GL and support them in preventing the misuse of this label;
g) to pay the corresponding fees and costs (annual fee and inspection costs).

If investigation for reported misuse of the quality label confirms the allegation, the cost of the investigation shall be borne by the misuser. If the allegation proves unjustified then the cost shall be borne by the informer.

2. Following this statement by the sub-licensee, which is hereby acknowledged, the GL undertakes

a) to arrange for a sub-licence certificate to be issued to the sub-licensee entitling the latter to use the label according to the Regulations for the licensable products listed in the sub-licence;
b) to take all appropriate steps for the protection of the label in ..... (country);
c) to prevent its unauthorized or incorrect use;
d) to safeguard the interests of the sub-licensee as the authorized user.

3. The GL and the sub-licensee agree herewith that the present contract shall continue valid until such time as the sub-licence certificate, which shall be issued according to this contract, shall be withdrawn as stipulated in the Specifications.

4. The right to use the quality label shall be limited to a period of one year. If all the above-mentioned obligations of the sub-licensee are met, this right shall be continued, in each case for a further period of one year. If the qualifications for some reason lapse, the GL may give a four months' notice of termination. The sub-licensee is also entitled at all times and with immediate effect, to waive the right to use the quality label. In this case, the procedure for withdrawal of the sub-licence set out in the Specifications shall apply.

Place, date: .....

The General Licence Holder (GL)

....

The sub-licensee

....

3 Procedure to renew a sub-licence

3.1 Procedures

The procedures below assume that the TI nominates the inspectors. However, if the GL is accredited to ISO/IEC 17065, it may nominate inspectors. In such cases, the procedures should be read accordingly.

The clauses referred to below are those of the Specifications unless stated otherwise.

All information concerning the inspection results and their assessment shall be confidential.

3.1.1 Responsibilities

1. GL assumes that SL wants to renew its licence for all the licensable products of its licence unless the SL has notified it otherwise.
2. GL initiates the renewal process by instructing the TI to carry out inspections for the licensable products by following diagram A of the *Specifications* clause 6 and the *General Regulations I - Procedure for carrying out inspections of sub-licensees' plants*. **It is not necessary for each licensable product to be dealt with at a separate visit to the plant.**
3. TI carries out inspections as instructed by GL. The testing institute and inspector follow the steps stipulated by the Qualanod database for planning the inspection visit.
    a. TI carries out inspections unannounced unless other arrangements are approved by QN according to clause 6.2.2 of the Qualanod Specifications.
4. SL notifies the GL and the TI if (in SL's opinion) unforeseen circumstances make it impossible to carry out an inspection.
    a. On receipt of that notification, the GL may ask QN to suspend inspections for a maximum of 12 months. QN may consult the TI in reaching its decision.
    b. QN notifies the GL of its decision.
    c. GL notifies SL and TI of QN's decision
    d. If no inspection has taken place within the twelve-month period, QN may withdraw the sub-licence.
5. The inspector records the results of the inspection visit in the Qualanod database, completely filling in the inspection report form as provided in the Qualanod database.
    a. At the end of the inspection visit, the inspector's conclusions (identifying nonconformities, issues and required CAPs as applicable) are signed off by both the inspector and the SL, which may add comments.
6. After completing the report with all required test results, the inspection report is submitted to the general licensee via the Qualanod database.
7. The general licensee assesses the inspection report as described in clause 6.3.3 of the Qualanod Specifications.
8. The GL gives its decision in the database as to whether it recommends (individually for each licensable product) that the inspection report should be evaluated as satisfactory or not by the Qualanod Secretariat.

9. The GL forwards the inspection report to the Qualanod Secretariat via the Qualanod database.
10. The Qualanod Secretariat assesses the inspection report and the information given by the GL as described in clause 6.3.3 of the Qualanod Specifications.
11. The Qualanod Secretariat decides whether the inspection of each licensable product has been evaluated as satisfactory or not and records its decision with reasons in the Qualanod database. As applicable, it may add remarks to the testing institute / the inspector. The decision of the Qualanod Secretariat is communicated to the GL via the Qualanod database.
12. The GL informs the SL about the decision and informs the testing institute / the inspector about remarks added by the Qualanod Secretariat as applicable.
13. The SL may appeal the decision within 10 working days after having been informed by the general licensee. Such appeal shall provide detailed reasons and shall be directed to the GL.
14. The GL forwards the appeal to the Qualanod Secretariat for decision by the Qualanod Label Committee. The decision of the Label Committee is final.
15. After an unsatisfactory or partially satisfactory routine inspection visit, a repeat inspection visit is carried out within two months of the anodizing plant receiving from the general licensee notification that the inspection was not fully satisfactory.
16. After an unsatisfactory or partially unsatisfactory inspection visit, the anodizing plant may decide that it does not want its licence renewed for one or more licensable products. In such circumstances, it shall notify the general licensee by written communication. The general licensee informs the testing institute or, if the general licensee is accredited to ISO/IEC 17065, it informs the inspector.
17. Upon decision by the Qualanod Secretariat, the plant's sub-licence for a licensable product, for which it seeks to use the label, may be renewed if at least two inspections per calendar year are satisfactory.
18. If a licence cannot be renewed, the anodizing plant shall not make a new application for a licence until at least three months have elapsed. If a licence cannot be renewed for a licensable product, the anodizing plant shall not make a new application for a licence for that licensable product until at least six months have elapsed.
19. QN notifies GL that the sub-licence has been renewed
    a. If SL is up to date in the payment of sub-licence fees, QN issues to it a sub-licence certificate.
20. GL notifies QN of any change of name or address of a SL.
    a. QN modifies the SL's details on the register of sub-licensees and the list on the website.

4 Procedure for the withdrawal of a sub-licence

4.1 Procedures

The procedures below assume that the TI nominates the inspectors. However, if the GL is accredited to ISO/IEC 17065, it may nominate inspectors. In such cases, the procedures should be read accordingly.

The clauses referred to below are those of the Specifications unless stated otherwise.

All information concerning the inspection results and their assessment shall be confidential.

4.1.1 Responsibilities

1. QN may withdraw the sub-licence if there have not been at least two satisfactory inspections per calendar year (1st January to 31st December) for any licensable products for which the plant seeks to use the label.
2. SL notifies the GL and the TI if (in SL's opinion) unforeseen circumstances make it impossible to carry out an inspection.
    a. On receipt of that notification, the GL may ask TN to suspend inspections for a maximum of 12 months. QN may consult the TI in reaching its decision.
    b. QN notifies GL of its decision.
    c. GL notifies SL, and TI of QN's decision.
    d. If no inspection has taken place within the twelve-month period, the QN may withdraw the sub-licence.
3. QN may withdraw the sub-licence if the SL no longer complies with the Regulations and, in particular, in the event of any unauthorized or incorrect use of the quality label (see clause 7 of the Qualanod Specifications).
4. QN withdraws the sub-licence if the SL ceases to trade.
    a. GL receives all objects on which the quality label is shown or instructs on their keeping pending the application for a sub-licence by the legal representatives or successors in business of the SL.
    b. The legal representatives or successors in business of the SL are entitled to continue to use the quality label for three months pending the grant of a new sub-licence unless QN issues instructions to the contrary.
5. QN may withdraw the sub-licence if the SL has been proven not to respect relevant national laws.
6. If a sub-licence is withdrawn, QN notifies the GL who notifies the SL immediately in writing. The withdrawal has effect from the date of receipt of the notification.
    a. GL disseminates cancellation of a sub-licence by courier.
    b. GL informs TI of withdrawal of a sub-licence.

5 Procedure for the approval of new processes

5.1 Introduction

The applicant may be the manufacturer or a supplier of the new process, or an SL that wants to use the new process.

The clauses referred to below are those of this document unless otherwise stated.

5.2 Assessment and evaluation

The approval procedure can comprise the following stages.

A. A review by EWG of the information sent by the applicant.
B. Specimen preparation under the supervision of a representative of a TI.
C. Independent laboratory tests carried out by a TI.
D. Outdoor weathering tests of specimens for one and three years.
E. Evaluation and decision by the EWG.
F. An appeal to the AWG.

The applicant shall bear all the costs associated with the approval procedure.

5.3 Approvals

Provisional approval may be granted only after the completion of the laboratory tests (stage C) and one year's outdoor exposure testing at two sites and is valid for two years after which it lapses.

The purposes of the laboratory tests are as follows.

- The mass loss test is sensitive primarily to sealing quality which can influence the occurrence of staining, blooming and iridescence during service.
- The surface abrasion resistance test is able to identify "soft films" that might develop chalking during service.
- The AASS (acetic acid salt spray) test assesses the likelihood of pitting corrosion of the aluminium substrate during service. Note that the duration of the outdoor exposure testing is likely to be too short for any pitting corrosion to occur.

Provisional approval is not granted if the results of any of these tests are negative or if the one-year outdoor exposure testing at one or both sites is unsatisfactory. In any of these circumstances, the procedure may be terminated. However, if the applicant requests it, the procedure may continue to provide information for his interest only.

Provisional approval may be granted if the results of the admittance or dye-spot tests are negative or if crazing is visually apparent at a metal temperature below 80 °C in the thermal craze resistance test. However, the results will be disclosed on approval documentation including the Qualanod website to help users of the new process understand results from their production control tests and discuss crazing with their customers.

Provisional approval may be converted to full approval only after the successful completion of the three years' outdoor exposure testing at both of the two sites (stage D) and is valid for three years. Full approval may be renewed every three years.

The applicant may apply for a renewal of the full approval (see below). For the renewal to be granted, stages A, B, C, D (if applicable as described below) and E (evaluation by the EWG) shall be successfully completed before 31st December of the year in which the renewal is due. The AASS specimens shall be submitted to the EWG for evaluation no later than 1st September. Outdoor exposure testing on coloured specimens is to be started together with laboratory testing on every third renewal. Outdoor exposure shall commence before 30th June of the year in which the renewal is due to allow for evaluation by the EWG before 31st December three years later.

The EWG may consider other factors, at its discretion, when it decides whether to grant provisional or full approval or renewal. It may permit the repetition of a test (see below).

If provisional approval, full approval or renewal is not granted, the applicant may appeal (stage F). This is described below.

5.4 Responsibilities

The applicant may contact QN for advice on fulfilling its responsibilities as described below.

5.4.1 Procedure to obtain provisional approval

No.	Responsible	Task
1	Applicant	Applicant contacts a GL about seeking approval for its process.
2	GL	GL liaises with QN to find out whether it is a well-established process or has current approval and informs the applicant of the decision. 1. If it is well-established or has current approval, the process may be used by SLs. 2. Otherwise, go to step 3.
3	Applicant	Applicant sends its application to GL (see below).
4	GL	GL liaises with QN to decide whether the application is satisfactory. The application is reviewed by EWG which may request additional information including evidence of previous positive test results for the process. GL informs the applicant of the decision.
5	GL	Actions of the GL if the application is satisfactory: 1. Select a TI to carry out the practical work. 2. Together with the applicant, develop a proposal how the specimens will be produced. (Production location, type of line, production parameters selected as described in 5.6 below) 3. Forward the proposal and TDS to QN for approval by the EWG 4. Prepare a budget for the whole cost of the approval procedure including scenarios where the applicant discontinues the approval procedure before its completion.
6	GL	GL informs the applicant of the budget for the approval procedure and seeks the applicant's approval to continue.
7	GL	Actions of the GL following receipt of the applicant's approval: 1. On receipt of the payment and the EWG's approval of the proposal regarding production of specimens and using the template provided by QN, contract the TI to undertake and report the practical work.
8	TI	Actions of the TI: 1. Organize and supervise the preparation of all test specimens as approved by the EWG and as specified 5.6 below. 2. Record and report the processing conditions used for each of the specimens. 3. Measure and record the coating thickness of all the test specimens as described below. 4. Measure and record the gloss and colour of the test specimens for outdoor exposure as described below. 5. Arrange for the outdoor exposure tests to be carried out as specified below and confirm to the GL and QN that the specimens have arrived at the two exposure sites and the dates on which the exposure tests started.

		6. Perform the laboratory tests as specified below. 7. Clean and photograph the AASS test specimens after testing as described below. 8. Send the following as instructed by QN: a. The completed report form for the laboratory testing including coating thickness, gloss and colour data together with the TDS and the approved proposal for production of the specimens. b. The AASS test specimens and photographs. c. The control specimens. d. Photographs of the abrasive paper used for the surface abrasion resistance test after testing.
9	EWG	EWG examines the production conditions and properties (for example thickness and colour) of the specimens as recorded in the report of the laboratory tests. It reports to QN with its decision whether the EWG accepts the report and if so, whether QN shall require the applicant to adapt the TDS to the actual conditions selected in the specimen preparation. EWG examines the report of the laboratory tests and evaluates the AASS specimens. It reports to QN with its decision whether the results are satisfactory.
10	QN	Actions of QN: 1. Inform GL and the applicant of the decisions. 2. Liase with GL to ensure all appropriate invoices and fees have been paid by the applicant. 3. If the decision is negative: a. Inform the applicant that it may appeal. Ask the applicant whether it wants the approval procedure to continue for its own information only.
11	Applicant	Informs QN that it wants to consider appealing against the EWG's decision. Informs QN whether it wants the approval procedure to continue.
12	QN	Initiates the appeal process (see below) Informs the GL and TI whether the approval procedure should continue.
13	TI	Actions of the TI: 1. Ensure the withdrawal of the specimens from the two outdoor exposure sites after one year's exposure. 2. Clean, photograph and measure the coating thickness, colour and gloss of the test specimens as described below. 3. Send the following as instructed by QN: a. The completed report form for outdoor exposure testing b. The test specimens and photographs
14	EWG	EWG examines the report of the outdoor exposure tests and evaluates the test specimens from both sites. It reports to QN with its decision whether the results are satisfactory. If the results of the laboratory and outdoor exposure tests are declared to be satisfactory, it decides that provisional approval of the process be granted for a period of two years.
15	QN	Actions of QN: 1. Inform GL and the applicant of the decision. 2. Liase with GL to ensure all appropriate invoices and fees have been paid by the applicant. 3. If provisional approval is granted, include the process on the Qualanod website with its approval number, approval date, expiry date, relevant technical information specified by the EWG and indicating 'provisional approval'. 4. If the decision is negative: a. Inform the applicant that it may appeal. b. Ask the applicant whether it wants the approval procedure to continue for its own information only.

16	Applicant	Informs QN that it wants to consider appealing against the EWG's decision. Informs QN whether it wants the approval procedure to continue.
17	QN	Initiates the appeal process (see below) Informs the GL and TI whether the approval procedure should continue.

5.4.2 Procedure to obtain full approval

No.	Responsible	Task
18	TI	Actions of the TI: 1. Ensure the withdrawal of the specimens from the two outdoor exposure sites after three year's exposure. 2. Clean, photograph and measure the coating thickness, colour and gloss of the test specimens as described below. 3. Send the following as instructed by QN: a. The completed report form for outdoor exposure testing. b. The test specimens and photographs.
19	EWG	EWG examines the report of the outdoor exposure tests, evaluates the test specimens from both sites and, as appropriate, considers the experience of using the process since the provisional approval was granted. It reports to QN with its decision whether the results are satisfactory. If the results of the laboratory and outdoor exposure tests and any previous experience are declared to be satisfactory, it decides that full approval of the process be granted for a period of three years.
20	QN	Actions of QN: 1. Inform GL and the applicant of the decision. 2. Liase with GL to ensure all appropriate invoices and fees have been paid by the applicant. 3. If full approval is granted, include the process on the Qualanod website with its approval number, approval date, expiry date, relevant technical information specified by the EWG and indicating 'full approval'. 4. If the decision is negative, instruct the GL to: a. Inform the applicant that it may appeal. b. Ask the applicant whether it wants the approval procedure to continue for its own information only.
21	Applicant	Informs QN that it wants to consider appealing against the EWG's decision. Informs QN whether it wants the approval procedure to continue.
22	QN	Initiates the appeal process (see below)

5.4.3 Procedure for the renewal of full approval

No.	Responsible	Task
23	QN	QN notifies GL about renewal about six months before the full approval expires.
24	GL	GL enquires of the applicant whether it wants to renew.
25	GL	Actions of the GL if the applicant wants to renew: 1. Obtain the current TDS from the applicant 2. Select a TI to carry out the practical work. 3. Together with the applicant, develop a proposal how the specimens will be produced. (Production location, type of line, production parameters selected as described in 5.6 below). 4. Forward the proposal and TDS to QN for approval by the EWG 5. Enquire from QN if outdoor exposure is to be started in the course of this renewal 6. Prepare a budget for the whole cost of the approval procedure.
26	GL	GL informs the applicant of the budget for the approval procedure and seeks the applicant's approval to continue.
27	GL	Actions of the GL following receipt of the applicant's approval: 1. On receipt of the payment and the EWG's approval of the proposal regarding production of specimens by the EWG and using the template provided by QN, contract the TI to undertake and report the practical work.
28	TI	Actions of the TI: 1. Organize and supervise the preparation of all test specimens as approved by the EWG and as specified in 5.6 below.

		2. Record and report the processing conditions used for each of the specimens. 3. Measure the coating thickness of all the test specimens as described below. 4. Initiate the outdoor exposure testing if applicable. Results will only be evaluated in the next renewal unless the specimen fail after one year of outdoor exposure, in which case the approval will be withdrawn. 5. If outdoor exposure is to be started, measure and record the gloss and colour of the test specimens bound for outdoor exposure as described below 6. Perform the laboratory tests as specified below. 7. Clean and photograph the AASS test specimens after testing as described below. 8. Send the following as instructed by QN: a. The completed report form for the laboratory testing together with the TDS and the approved proposal for production of the specimens. b. The AASS test specimens and photographs. c. The control specimens. d. Photographs of the abrasive paper used for the surface abrasion resistance test after testing.
29	EWG	EWG examines the production conditions and properties (for example thickness and colour) of the specimens as recorded in the report of the laboratory tests. It reports to QN with its decision whether the EWG accepts the report and if so, whether QN shall require the applicant to adapt the TDS to the actual conditions selected in the specimen preparation. EWG examines the report of the laboratory tests, evaluates the AASS specimens and, as appropriate, considers the experience of using the process since the full approval was granted. It reports to QN with its decision whether the results are satisfactory. If the results of the laboratory and outdoor exposure tests and any previous experience are declared to be satisfactory, it decides that full approval of the process be renewed for a period of three years.
30	QN	Actions of QN: 1. Inform GL and the applicant of the decision. 2. Liase with GL to ensure all appropriate invoices and fees have been paid by the applicant. 3. If full approval is renewed, include the process on the Qualanod website with its approval number, approval date, expiry date, relevant technical information specified by the EWG and indicating 'full approval'. 4. If the decision is negative, instruct the GL to: a. Inform the applicant that it may appeal.
31	Applicant	Informs QN that it wants to consider appealing against the EWG's decision.
32	QN	Initiates the appeal process (see below)

5.4.4 Appeals

No.	Responsible	Task
33	QN	QN compiles the reports and sends them to the applicant.
34	Applicant	The applicant shall notify QN within eight calendar days of receipt of the reports if it wants to appeal and, if so, whether it wants to see the unsatisfactory specimens and their comparators.
35	QN	QN acknowledges receipt of the notification and sends the specimens to the applicant and instructs the GL to advise the applicant of the appeal fee.
36	Applicant	The applicant confirms if they intend to appeal.
37	QN	QN issues appeal invoice to the GL or applicant as appropriate for immediate payment.
38	Applicant	The applicant submits its appeal within eight calendar days of receipt of the notification or receipt of the specimens whichever is the latest. The appeal has to include any further information including, if appropriate, the technical grounds on

		which the appeal is based. Any specimens must be returned before the next AWG meeting.
39	QN	Confirms to AWG that the appeal fee has been paid. Provides AWG with information relevant to the case.
40	AWG	Actions of AWG on receipt of information relevant to the case and confirmation that the appeal fee has been paid: 1. Reject the appeal if no further information is provided by the applicant. 2. Review the information relevant to the case. 3. Decide whether to uphold the appeal. The decision of the AWG is final.
41	QN	Actions of QN: 1. Inform GL of the decision. 2. If the provisional approval / full approval / renewal is granted, include the process on the Qualanod website with its approval number, approval date, expiry date, relevant technical information and indicating 'provisional approval' / 'full approval'. 3. If the renewal is not granted, remove the process from the Qualanod website.

5.4.5 Annual fees

No.	Responsible	Task
42	GL	On behalf of QN, GL collects from the applicant the annual fees determined by the EC.

5.5 Application for assessment

5.5.1 Basic requirements

The application shall be written in English. It shall include a description of the process, a technical data sheet showing the most important properties and instructions for the operation or use of the process. It shall also include the results of tests carried out by the applicant on products produced using the new process. EWG may ask for more information at its discretion.

The applicant may decide that it wants the application handled anonymously. If so, it shall make this clear in its application.

5.5.2 Changes to the process

If, after the granting of provisional or full approval, the applicant changes the instructions for the operation of a process, issues an updated version of the technical data sheet or the use or the formulation of a chemical product, the process shall not be used by licensees until it has been approved by EWG. If the applicant wants the process to be used, it shall submit an application to the GL and QN. The application shall include a description of and the reasons for the changes and the version of the technical data sheet foreseen to be valid after the changes. EWG may compare the instructions and data sheet provided by the applicant at the time of the initial application with those issued to licensees at a later time. In these circumstances, EWG shall decide the requirements for approval to be granted.

5.5.3 Repetition

If the assessment of a new process has been unsuccessful, and the applicant wants the new process to be tested again, it shall submit an application for testing. The application shall include a description of any changes to the instructions for the operation of the process or the use or the formulation of the chemical product. EWG may compare the instructions and data sheet provided by the applicant at the time of the initial application with those provided at the time of the application for repeat testing.

5.6 Specimen preparation (stage B)

The specimens shall be prepared in one of the following.

- In an SL's production line under the supervision of a person representing the TI.
- In the TI's pilot line or laboratory.
- In the applicant's pilot line or laboratory under the supervision of a person representing the TI.
- In an SL's pilot line or laboratory under the supervision of a person representing the TI.

The number of batches should be minimized to better enable comparisons of specimens.

Special care should be paid to the preparation of specimens; they shall be free of defects. Because the tests are comparative between two processes, it is important that the chemical composition and microstructure of the specimens are the same. The specimens shall come from the same metal casting batch or coil. The applicant shall provide an analysis of the chemical composition of the metal if so requested by the EWG.

Specimens produced with the new process are compared with standard specimens produced using conventional methods.

The test specimens shall be as follows.

- Test specimens shall be AA 6063 or 6060 flat-panel extrusions or AA 5005 sheet with a thickness of about 2 mm. The specimens for outdoor exposure shall have dimensions preferably 200 mm by 100 mm but not less than 150 mm by 100 mm. The specimens for the acetic acid salt spray test shall have dimensions not less than 150 mm x 70 mm x 1 mm.
- Test specimens of the required size shall be cut from larger areas of material using a guillotine or a saw before the application of the surface treatment processes. Any burrs shall be removed without damaging adjacent areas of the surfaces.
- Test specimens shall be marked for identification purposes before the application of the surface treatment processes. The marking shall be made as small as is practical and on those areas of the specimens that are not subjected to visual assessment. Specimens for outdoor exposure or salt spray testing shall have marking that is durable and remains legible over the whole period of the test. Stamping is a suitable method.

Unless the EWG agrees otherwise, the processing conditions for the standard specimens shall be as follows.

- Specimens shall be subject to surface preparation E6 as described in clause 11.
- Separate specimens shall be anodized to class AA 15 and class AA 20, each class in the same anodizing batch.
- Anodizing shall be carried out in a sulfuric acid solution containing 180 ± 2 g/l free sulfuric acid and 5 to 10 g/l dissolved aluminium made up with deionized water, held at 20 °C ± 0,5 °C, and agitated by air agitation or solution recirculation. The current density shall be 1,5 ± 0,1 A/dm^2.
- Different specimens of each class shall be clear-anodized aluminium and colour-anodized aluminium coloured to a dark bronze (C34, CIE 1976 L* value less than 27) using a tin-based electrolyte.
- Specimens shall be sealed in deionized water at a temperature no lower than 96 °C and at pH 5,8 to 6,2, whereby 0,1 to 1,0 % ammonium acetate can be used as a buffer. Sealing time shall be 3 min per micrometre of coating thickness. An anti-smut additive shall be used.

Test specimens representing the new process shall be produced using the same processing conditions as for the standard specimens except those conditions associated with the new process. If the applicant specifies a range for any processing condition, an extreme value shall be selected. For instance:

- if the anodizing bath temperature can be 20 °C to 25 °C, 25 °C shall be selected;
- if the sealing temperature can be 85 °C to 95 °C, 85 °C shall be selected;
- if the sealing additive concentration can be 10 g/l to 15 g/l, 10 g/l shall be selected.

This is to fully test the capabilities of the new process.

Specimens for laboratory tests and for outdoor exposure (as applicable) shall be produced at the same time. This means that there will be eight sets of specimens (two thickness classes x two colours x two processes) which will go forward for testing. Each test shall be carried out on triplicate specimens. Each

set shall comprise at least 21 specimens and one specimen retained for control purposes. Control specimens shall be made available to EWG as requested to determine changes in properties, e.g., colour, as a result of exposure of test specimens. The number of specimens required is summarized in Table 1.

The representative of the TI should ensure that he records and reports the processing conditions used for each of the specimens. This is because significant variations could arise if, for example, colouring conditions were not the same for different thickness coatings on standard and new-process specimens. The report shall also indicate in which production location and on what type of line the specimens were produced.

Table 1. Distribution of test specimens

Test (see clauses 8 & 9)	Number of specimens per set	Total number of specimens
Control	3	24‡
Mass loss test	3	24
Dye spot, admittance, surface abrasion and thermal craze resistance tests	3	24
Acetic acid salt spray test	3	24
Outdoor exposure – site A	One-year exposure: 3 Three years' exposure: 3	48‡
Outdoor exposure – site B	One-year exposure: 3 Three years' exposure: 3	48‡
Total	24	192
‡ The specular gloss shall be measured for these specimens		

Before applying laboratory or outdoor exposure tests, the average thickness of the coatings of all specimens shall be measured following the procedures of the current edition of the Specifications. Thickness is to be measured in three measurement areas per specimen. Specimens shall comply with the requirements for the thickness class set forth in the Qualanod specifications and in addition, none of the local thicknesses measured shall exceed 120% of the thickness class value: on AA15 specimens no local thickness shall exceed 18 µm and on AA20 specimens no local thickness shall exceed 24µm. Non-compliant specimens shall be rejected. Before applying outdoor exposure tests, the specular gloss at 60° and/or 85° and the CIE 1976 L*, a*, b* colour of specimens indicated in table 1 shall be measured following the procedures of the current edition of the Specifications. These thickness and gloss data shall be sent for evaluation as instructed by QN.

If more than one TI is commissioned with performing tasks in the same project, then it shall be clearly stated in the report which TI has performed which tasks.

Test specimens before testing and control specimens shall be safely stored in a room with a controlled temperature and a relative humidity of 65% or less, or in a desiccator, or sealed in plastic bags with desiccant.

It is important to maintain specimen data records particularly to prevent confusion over the processing conditions used for outdoor exposure specimens. The specimen marking and the records shall use the following identification system of two letters and two numbers.

- S indicates the standard process. N indicates the new process
- 15 indicates AA 15. 20 indicates AA 20.
- C indicates a coloured specimen. U indicates an uncoloured specimen.
- The final number, 1 to 22, identifies the individual specimen in the set.

Thus, N15C9 would identify the ninth specimen of the set of coloured AA 15 specimens produced using the new process.

5.7 Laboratory tests (stage C)

5.7.1 Procedures for the laboratory tests

Each test shall be carried out on triplicate specimens.

The series of tests shall comprise the following, which shall be carried out in compliance with section 12 of the current edition of the Specifications or as specified below for the AASS test. The sections of the Specifications describing the tests are included for reference purposes.

- Coating thickness using the eddy current method (9.2)
- The mass loss test with predip for sealing (9.3.1)
- The dye spot test for sealing (9.3.3)
- The admittance test for sealing (9.3.4)
- The acetic acid salt spray (AASS) test for corrosion resistance (9.5).
- The production control test for surface abrasion resistance (9.6.1).
- The thermal craze resistance test (9.13).

5.7.2 Procedures for the acetic acid salt spray (AASS) test

The AASS test is performed as specified in ISO 9227.

The corrosivity of the salt spray cabinet shall be checked following the method for evaluating cabinet corrosivity specified in ISO 9227. During permanent operation, the time interval between corrosivity checks shall not be more than three months. The test report shall include the date of the last corrosivity check.

The duration of the test shall be 1000 h. The specimens shall not be cleaned during exposure. On completion of the test, the specimens shall be washed with water (without scrubbing) to remove corrosive agents from the surface that could otherwise promote further corrosion during storage and transportation and dried without applying heat. After cleaning, photograph and measure the coating thickness of all the test specimens. Send the specimens, the photographs and the thickness data as instructed by QN.

5.7.3 Evaluation of AASS test results

The aim of the test is to assess the resistance to pitting corrosion of the aluminium substrate. Thus, the EWG shall rate the corrosion following the method specified in ISO 10289 and the instructions below.

1. Mask to define an inspection area of 50 cm^2 on each specimen.
2. Use dot charts from ISO 10289 and/or ISO 8993 to determine A, the percentage of the inspection area showing base metal corrosion.
3. Determine the rating, R_P, if necessary, by using the formula $R_P = 3\ (2 - \log A)$. Note: for $A \leq 0{,}05\%$, $R_P = 10$.
4. Calculate:
   i. R_{PN}, the average of the R_P values for each set of new-process specimens
   ii. R_{PS}, the average of the R_P values for each set of standard specimens.
5. Compare each R_{PN} with its equivalent R_{PS}. If $R_{PS} - R_{PN} > 1$, then the new-process specimens are unsatisfactory.
6. If any of the sets of new-process specimens is unsatisfactory, then the result of the AASS testing is negative.
7. Report the values of R_P for every specimen and send the results to QN.
8. Where multiple evaluations are carried out separately at different locations, EWG compares the results. The EWG makes the final decision following the majority result.

The EWG may take other factors into consideration when deciding whether the specimens prepared using the new process performed satisfactorily in the AASS test.

5.8 Outdoor weathering tests (stage D)

5.8.1 Procedures for outdoor exposure testing

Outdoor exposure tests shall be applied to specimens produced with the new process and to standard specimens, i.e. the two thickness classes, and natural and dark bronze finishes.

Specimens (in triplicate) shall be exposed for one year and three years at two sites, Genova and Hoek van Holland, either or both of which may be substituted by equivalent exposure sites if specifically approved by EWG. In making its decision, EWG would expect to be provided with information on the exposure site as specified in ISO 9223 “Corrosion of metals and alloys -- Corrosivity of atmospheres -- Classification, determination and estimation” including: location (longitude and latitude); elevation; annual average temperature, relative humidity, sulfur dioxide deposition rate and chloride deposition rate; corrosivity class for aluminium. Exposed specimens on the site shall not be exposed to unusual local sources of dirt or particulates.

The outdoor exposure shall follow the requirements of ISO 8565 “Metals and alloys -- Atmospheric corrosion testing -- General requirements” with changes as described in this document. In particular, note the following points.

- The test specimens shall be subjected to open-air exposure, ie not sheltered exposure.
- Each specimen shall be set with its longitudinal axis at 45° and facing towards the equator.
- Each specimen shall be fixed to its rack using fixing points at or near the edges of the specimen. The area occupied by the fixing points shall be as small as possible. Insulating material shall separate the specimen from the rack and any metallic fixing device. This prevents galvanic corrosion.
- The reverse side of each specimen shall not be covered other than at fixing points. This enables any changes in appearance to be assessed after exposure.
- No specimen shall be fixed to a rack so that it is less than 0,75 m above the ground. Any vegetation below each specimen shall be controlled and maintained below 0,2 m.
- The specimens shall not be cleaned during exposure.

Three specimens shall be withdrawn after one-year exposure; the remaining three specimens shall be withdrawn after a further two years. On withdrawal, the specimens shall be washed with water (without scrubbing) to remove corrosive agents from the surface that could otherwise promote further corrosion during storage and transportation, and dried without applying heat. After cleaning, photograph and measure the coating thickness, gloss and colour of all the test specimens. Gloss should be measured using the same instrument and settings as used before exposure. Send the specimens, the photographs and the thickness, gloss and colour data as instructed by QN.

Before they are evaluated, withdrawn test specimens shall be safely stored in a room with a controlled temperature and a relative humidity of 65% or less, or in a desiccator, or sealed in plastic bags with desiccant.

5.8.2 Evaluation of outdoor exposure test results

The EWG shall rate the performance of the specimens following the method specified in ISO 10289 and the instructions below.

1. Mask to define an inspection area of 50 cm^2 on each specimen.
2. Examine each specimen to determine the type of surface deterioration (normally only A, B or K – precise identification of the type is not important)
    A. Staining due to deterioration of the coating
    B. Dulling with little or no degradation of the coating
    E. Surface pitting not extending through to the basis metal
    F. Flaking, peeling, spalling
    G. Blistering
    H. Cracking
    I. Crazing

K. Surface material arising from the degradation of the coating
L. For colour-anodized specimens, colour change due to deterioration of the coating

And the degree of degradation

vs very slight amount
s slight amount
m moderate amount
x excessive amount

The examination should follow the provisions of section 12.7.6 of the Qualanod Specifications and at a distance of about one metre.

3. Use dot charts from ISO 10289 and/or ISO 8993 to determine A_P, the percentage of the inspection area showing base metal corrosion.
4. Make a subjective assessment of A_A, the percentage of the inspection area showing surface deterioration.
5. Determine the ratings, R_P and R_A, if necessary, by using the formula $R = 3\ (2 - \log A)$. Note that for $A \leq 0{,}05\%$, $R = 10$.
6. Calculate:
   i. R_{PN}, the average of the R_P values for each set of new-process specimens
   ii. R_{PS}, the average of the R_P values for each set of standard specimens
   iii. R_{AN}, the average of the R_A values for each set of new-process specimens
   iv. R_{AS}, the average of the R_A values for each set of standard specimens
7. Express the performance rating as, for example, 9/2 m A where $R_{PN} = 9$, $R_{AN} = 2$ and there is a moderate amount of staining and/or colour change.
8. Tabulate and compare the performance ratings of the new-process specimens and those of the equivalent standard specimens.
9. Make a subjective assessment whether, overall, the performance ratings of the new-process specimens and those of the equivalent standard specimens are significantly different.
10. If the ratings are significantly different for any of the equivalent sets of specimens, then the result of the outdoor exposure testing is negative.
11. Report the performance ratings for every specimen and send the results to QN.
12. Where multiple evaluations are carried out separately at different locations, EWG compares the results for a majority decision. The EWG makes the final decision following the majority result.

The table below shows some examples of outdoor exposure performance ratings and tentative results.

Standard specimens	New-process specimens	Result	Comment
10/4 s A	9/4 s A	positive	The acceptance criterion is $R_{PS} - R_{PN} \leq 1$
10/4 s B	10/3 s B	positive	$R_{AS} - R_{AN} \leq 1$
10/4 m A	10/2 m A	negative	$R_{AS} - R_{AN} > 1$ and $R_{AN} < 4$
10/2 m A	10/2 m B	positive	A, B, E and K types of deterioration are considered to be not inherently more or less acceptable than each other.
10/3 vs A	10/3 s A	positive	Small differences are probably not cosmetically significant. Also applies to B, E and K.
10/3 s B	10/3 m B	negative	This difference is probably significant. Also applies to A, E and K.
10/3 m K	10/3 x K	negative	This difference is most probably significant. Also applies to A, B and E.

The EWG may take other factors into consideration when deciding whether the specimens prepared using the new process performed satisfactorily during outdoor exposure.

5.9 Repeating tests

If test results are negative, new specimens may be produced and the tests repeated. The applicant shall submit an application as described above. Stages A, B, C and/or D as appropriate, and E shall be followed. That is, there is no need to repeat tests, the results of which are satisfactory.

The testing procedures shall be those described in the edition of General Regulations V in force when the GL finalizes the budget for the approval procedure.

6 Procedure to assess the results of an inspection

6.1 Introduction

This procedure sets out the criteria applied by Qualanod for the assessment of inspection reports for granting and renewing licences to anodizers.

6.2 Reference standards

- Qualanod Specifications (latest edition)
- EN 17000: Conformity assessment - Vocabulary and general principles
- EN 45011/ISO 17065
- ISO 17067: Conformity assessment — Fundamentals of product certification and guidelines for product certification schemes

6.3 Definitions

NONCONFORMITY: failure to comply with a requirement, leading to a repetition of the inspection.

ISSSUE: failure to comply with a requirement not included in the list of nonconformities defined from time to time by Qualanod.

FIRST INSPECTION: see Specifications 6.1.3 diagram A

SECOND INSPECTION: see Specifications 6.1.3 diagram A

REPEAT INSPECTION: see Specifications 6.1.3 diagram A

CORRECTION: action taken to eliminate (remedy) a detected nonconformity or issue.

CORRECTIVE ACTION: action taken to eliminate the cause of a detected nonconformity or issue in order to prevent recurrence.

PREVENTIVE ACTION: action taken to eliminate the cause of a potential nonconformity or issue.

6.4 Specifications section 6.1.3

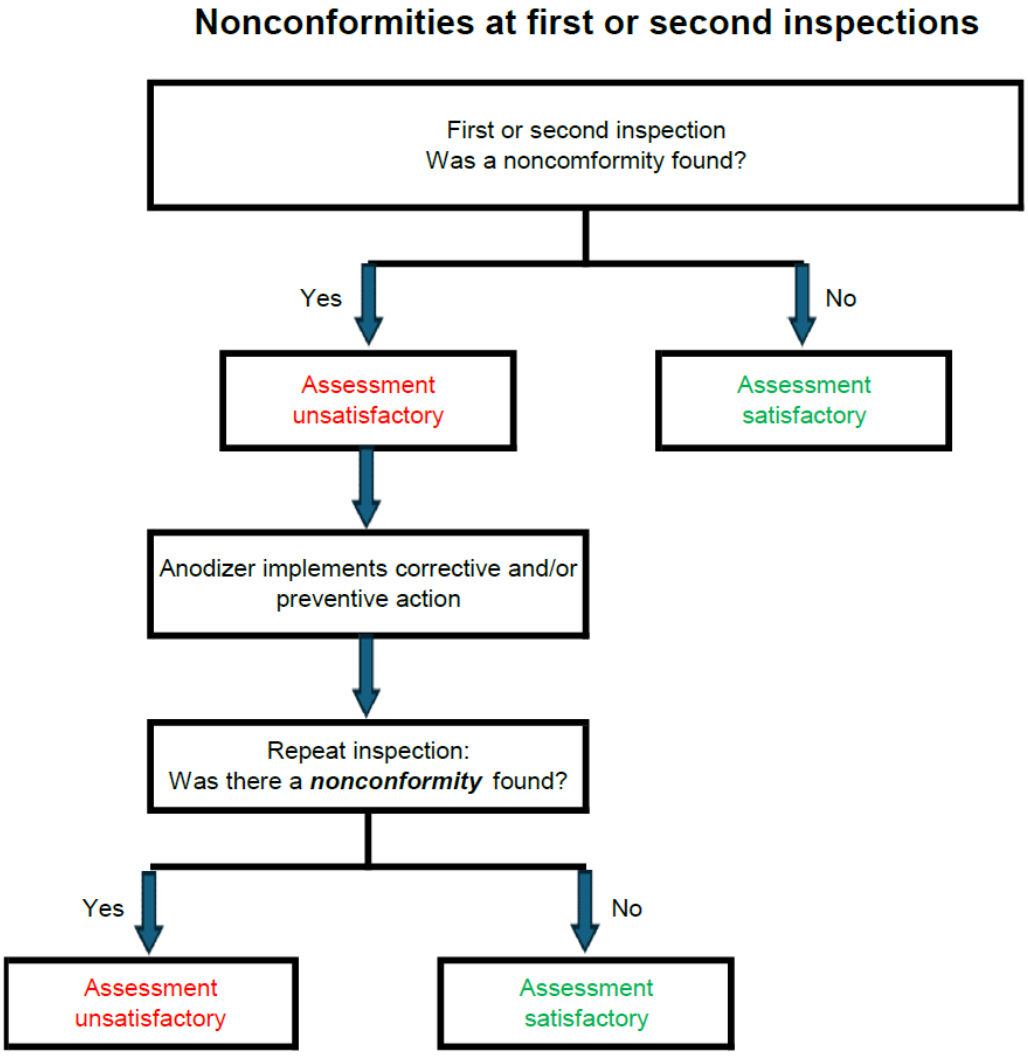
An inspection identifies nonconformities and issues. The nonconformities for each anodizing type are listed in the appendices of the Specifications.

If one or more nonconformities are found at a first or second inspection for a licensable product, then a repeat inspection is carried out (see Specifications 6.1.3 diagram A). If one or more are found at a repeat inspection for a licensable product, then the licensing requirements are not satisfied and the licence for that product is not renewed.

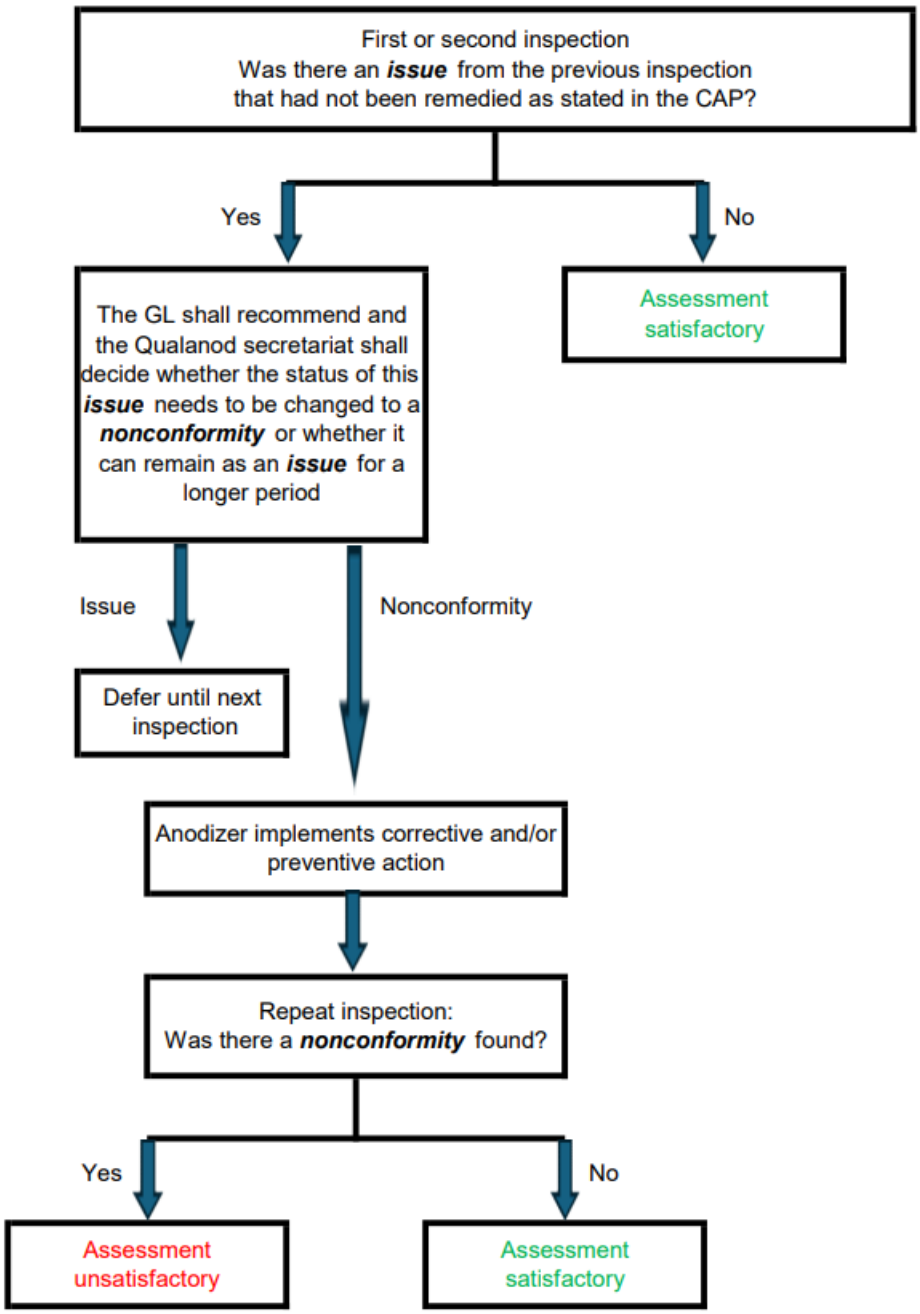
If one or more issues are found at an inspection, then these are recorded on the inspection report. For each issue, the licensee shall define a Corrective Action Plan (CAP) and provide it to the general licensee and the inspector via the testing institute where it is the inspector's employer within two weeks from the date of inspection. The implementation of CAP 1 is verified by the general licensee within two weeks after submission of the CAP 1. If the licensee has not provided proof to the general licensee that said issue has been remedied within those two weeks, then the issue shall be treated as a nonconformity. The implementation of the CAP 2 is verified at the next inspection. If said issue has not been remedied by the time of the next inspection, then the issue may be treated as a nonconformity.

6.5 Nonconformities and CAP 2 issues determining the results of inspections

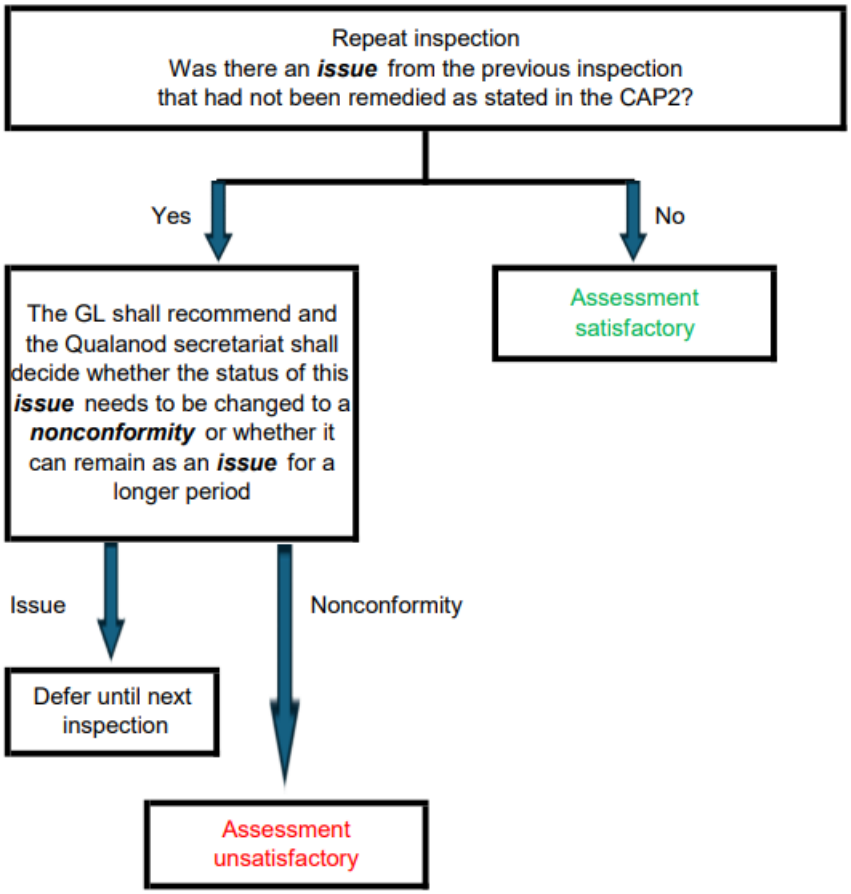
The diagrams below show the decision trees for the results from an inspection for a licensable product (anodizing type) depending on whether it was a first, second or a repeat inspection. Note that the issues in the diagrams below are assumed to be issues which require a CAP 2 (priority two) corrective action plan as defined in clause 5.2 of the Qualanod Specifications.



Issues at first or second inspections



Issues at repeat inspections



7 Guideline for remote inspection

7.1 Introduction

This procedure sets out the criteria for remote inspections to be conducted.

In general, Qualanod inspections shall be performed physically and unannounced. This remains as standard procedure and shall be the first option.

Remote inspections shall only be used in exceptional situations and shall be authorized. Restrictions and approval process are described under point 7.3 in this procedure. In addition, also Remote inspections shall be performed unannounced.

7.2 Referencing Standards

Regarding the ISO 17025 accreditation of the testing institute, the International Accreditation Forum (IAF) passed a Mandatory Document (MD) No. 4 issued 04.07.2018 regarding the use of Information and Communication Technology (ICT) for auditing / assessment purposes. The document allows for both, inspection body and assessment body the use of ICT for auditing and assessment, provided the conformances of the IAF are met. In a nutshell, the requirements are:

- Data protection
- Mutually agreement between anodizer and inspector to participate an online audit (remote inspection)
- Identify the risks of an online audit
- Audit plan needs to be set up according to cover these risks
- Technical infrastructure must be checked
- Auditors shall have the competence to carry out online audits
- Additional time as planning the audit may be necessary, please check

The guidelines cover all above requirements.

7.3 Restrictions and approval process

The following restrictions and approval process apply to perform remote inspections:

1. Remote inspection is only allowed for renewal. All **granting's** must be performed **physically**.
2. Risk assessment according to the below criteria by the testing institute and General Licence holder (for individual licence holder - Qualanod).
3. The testing laboratory needs to provide evidence to Qualanod that remote inspection is allowed or not.
4. The involved parties need to provide a "good reason" why physical inspection can't be performed.

   Good reasons are

   a. Danger to the life of the inspector
   b. Region of the Licensee needs to be within a crisis area or a crisis warning area or a similar restriction from the local government.
   c. For example: War, natural disasters, epidemics, pandemics, terrorism
   d. Travel and visiting restriction by the local government.
   e. Visiting restriction by the company itself with understandable reasons. (for example, a confirmed case of infection within the company)

f. Epidemic / Pandemic: remote audits can also be carried out in countries with very limited travel options such as: Evidence of a current negative test (e.g. PCR test), quarantine on entry, lack of travel connection/infrastructure

5. The company is written to and confirms the possibility of a remote inspection. The guideline is made available to the company.

   If necessary, the video stream is checked in advance (see guideline). Since many other audits (9001, Qualicoat etc.) have now been made online, this point may not be applicable.

   The Qualanod licenced anodizer needs to **agree** on remote inspection.

6. **Approval of the remote inspection by General Licence holder and Qualanod.** Each inspection needs an **own** approval by all parties.

7. In case of a positive decision the following must be noted on the inspection report
   - that it is a remote assessment and why a remote assessment was carried out (see reasons above)
   - that the anodizer is in agreement with a remote inspection
   - the date of approval of Qualanod.

7.4 Requirements and Procedure

The requirements for carrying out remote inspections are defined below.

7.4.1 Hardware Requirements

Technical requirements for the anodizers are:

- A portable device like a smartphone or tablet with conferencing apps and Camera
- Microphone and Speaker, ideal would be a headset (see picture in the appendix)
- Fast, stable internet
- Device for charging the portable device

During the audit, the inspector can use two screens; one with the inspection report to be filled in and one with the videoconference. In order to carry out “remote inspections”, special training for the inspectors might be necessary.

7.4.2 Pre-Check of Feasibility

Before the audit, the internet connection needs to be checked by the inspection body. The inspector will call the licence holder in advance, checking the connection, the internet speed and the quality of the video stream. Within this pre-check a suitable video-conferencing platform will be agreed by testing body and anodizer (e.g. Teams, Skype, GoToMeeting, Zoom, Webex, etc.). If necessary, the technical contact of the company will get a training for the video conferencing by the inspector.

In order to make the working environment for the audit better, the company receives a “check list” with the objects an inspector will ask for during the audit and a flow chart for the inspection. This way the inspection is kept focussed and does not run out of time. **The inspection by itself will be unannounced.** The anodizer is made aware of this.

7.4.3 Procedure for the Online Inspections

In the morning (in case of time difference morning of the anodizer), the inspector calls the licence holder to carry out an inspection. As the video-conferencing platform app should be pre-installed, the inspection should be able to start without delay (unannounced inspection).

The audit will be split into different modules, which are worked through step by step (see flow chart in section 6). Breaks for charging the (mobile) devices or have a rest will be necessary as well. Probably there will also be some deviations from the procedure in the flow chart depending on the course of the audit. The timespan for the inspection is the usual 4-6 hours as the whole process will be checked in the usual way.

At the end of the inspection, the inspector discusses the issues and non-conformities and sends the checklist to the company for their signature. The inspector finalises the inspection report and sends it to the respective party.

7.4.4 Data Protection

The video material of the inspection will not be shown to third parties and kept confidential between anodizer and inspector. There are no records of the video-stream stored, photos will be stored separately at the inspection body. The data of the inspection will be recorded as usual in the current valid version of the master inspection report.

7.5 Checklist for the Anodizing Plant

7.5.1 Documentation / Inhouse Control

The anodizer should be prepared to show the inspector the following documentation which may be either paper-based or in computer files. If necessary, they can be shown using the share-screen facility of the video conferencing software.

1. The plant's Qualanod licence showing the anodizing types for which the plant is licensed.
2. A selection of documents showing agreements with customers.
3. The plant's register of complaints.
4. The production control records.
5. Suppliers' written instructions for the use of processes they have supplied.
6. The plant's standard operating practices.
7. The approval numbers for any processes used by the plant that require Qualanod approval.
8. Copies of the ISO standards specifying the tests that the plant applies or written working instructions based on those standards.
9. Data sheets for each testing apparatus showing the apparatus identification number, calibration checks and maintenance service records.
10. Evidence that the glass-coated abrasive paper has been validated (only if the ISO 18771 test method is used).
11. Where subcontracted product tests are carried out.
12. A selection of documents showing the plant's use of the quality label.
13. Reference foils for the thickness gauge.
14. pH buffers-especially the expiry date.
15. Process for anodizing: Short process description of chemical pre-treatment, anodizing and sealing with:
    - products and process parameters recommended by chemical supplier:
    - bath analyses,
    - temperature,
    - sealing time
    - pH value (sealing bath)

7.5.2 Visual observation

The anodizer should be prepared to show the inspector the following by walking around the plant and using a camera ideally linked to the video conferencing.

1. The anodizing lines and any mechanical pretreatment facilities. The inspector should be told what solutions are in the baths.
2. The monitoring of solution temperatures.
3. The storage of aluminium products both before and after anodizing.
4. The laboratory and testing apparatus.

5. The stock of chemicals needed for product testing and solution analyses. The inspector will want to verify that all are available.

The inspector will want to witness the following. A camera should be used ideally linked to the video conferencing.

1. The use of the testing apparatus to determine any deviations from standards.
2. The application of the product tests to actual products
3. The analysis of bath solutions (although he might not watch the analyses completely from beginning to end).

7.5.3 Inspection of products

The anodizer should be able to identify finished products for inspection, which it has inspected and passed as satisfactory or parts which have been packed and/or are ready for dispatch. The inspector will want the anodizer to carry out thickness measurements on at least 30 parts for each type of anodizing. This could consist of many lots with different numbers of parts in each. For each lot, the anodizer should be able to show the inspector documentation tracing back to the customer's order. It is important that the lots selected include ones from all the anodizing lines in the plant and include all the sealing processes operated by the plant.

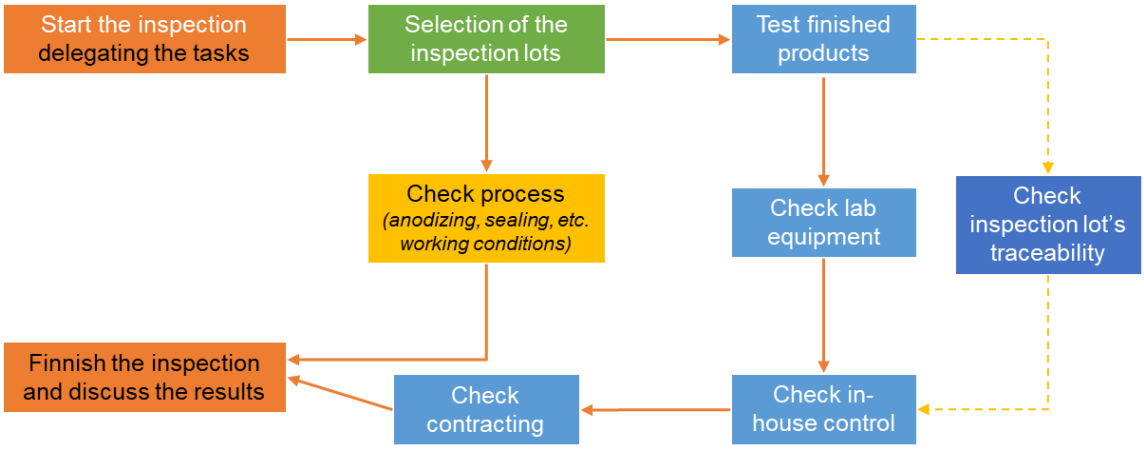
If test specimens cannot be taken from a production lot, then the inspector will expect special test specimens made of the same alloy as the production lot and treated simultaneously with it to be available. If it had not been possible to produce those, then the inspector will expect special test specimens made of an alloy containing at least 97% aluminium and treated simultaneously with the production lot to be available. Circumstances which might lead the licensee to produce special test specimens include those where: i) it is not possible to take specimens from the production lot because of the shape, size or form of the product; ii) multiple lots of different alloys are treated together; iii) the lot comprises only one piece.

If there are insufficient parts of one anodizing type, special rules apply. The inspector might want thickness measurements carried out on the parts that are available.

Depending on the further product testing that is required, the inspector will identify samples for those tests from the lots subjected to thickness measurement. Those tests could include the dye spot, admittance, mass loss, surface abrasion resistance and/or wear tests. He will want the anodizer to carry out those tests although he may request that samples be sent to testing institutes for the mass loss, surface abrasion resistance and/or wear tests. The dye spot and admittance tests should always be performed in the plant. If samples are to be to send to a testing institute, the inspector will want to observe each one being uniquely marked so that it can be identified on arrival at the testing institute.

7.6 Flow Chart

In this section, the modules/blocks of the online inspections are visualized in a flow chart.



7.7 Appendix

7.7.1 Helpful Technical Equipment

The following technical equipment are examples, you may use different equipment adapted to the situation (e.g. security helmet, etc).

8 Procedure for the discretionary assessment of the capability of processes for industrial, decorative, or hard anodizing

8.1 Introduction

General Regulation V specifies the procedure to gain approval for the use of a process for use in architectural anodizing. Such approval is necessary before a licensee may use the process for architectural anodizing. This is because it is not possible to apply a simple test that adequately simulates outdoor exposure conditions. However, approval is not required for such a process to be used for industrial, decorative or hard anodizing. This is because the tests specified by Qualanod effectively simulate the service conditions encountered by products from those types of anodizing.

Nevertheless, for commercial reasons, sometimes suppliers of processes not intended for architectural anodizing but intended for industrial, decorative or hard anodizing want recognition from Qualanod. This document sets out a procedure whereby the capability of such a process can be assessed by Qualanod if so requested by the supplier.

The applicant may be the manufacturer or a supplier of the process, or an SL that wants to use the process.

The clauses referred to below are those of this document unless stated otherwise.

8.2 Assessment and evaluation

The assessment can comprise the following stages.

A. A review by EWG of the information sent by the applicant.

B. Specimen preparation under the supervision of a representative of a TI.

C. Independent laboratory tests carried out by a TI.

D. Evaluation and decision by the EWG.

E. An appeal to the AWG

The applicant shall bear all the costs associated with the assessment and evaluation procedure.

8.3 Declaration of assessment

Qualanod may certify that products produced using the process have performed satisfactorily during laboratory tests including any tests for simulation of service conditions. The applicant will receive a document “declaration of assessment” and his process will be included in a separate section of the Qualanod website that gives all such declarations. The declaration of assessment contains the results of the product tests that were applied. The EWG may permit the repetition of a test (see below).

The declaration of assessment may be renewed every five years. The applicant may apply for the renewal (see below). For the renewal to be granted, products produced using the process have to perform satisfactorily during the laboratory tests.

The applicant may appeal if the results of any of the tests are negative (see below).

8.4 Responsibilities

The applicant may contact QN for advice on fulfilling its responsibilities as described below.

8.4.1 Procedure to obtain a declaration of assessment

1	Applicant	Applicant sends its application to GL (see below).
2	GL	GL sends application to QN for consideration by EWG.
3	QN	Coordinates agreement between the EWG and the applicant on the conditions to be used in the production of the test specimens and the product tests that will be applied. Informs the GL of the resulting agreement.
4	GL	Actions of the GL if the application is satisfactory: 1. Select a TI to carry out the practical work. 2. Determine how the specimens will be produced. 3. Prepare a budget for the whole cost of the assessment and evaluation procedure including scenarios where the applicant discontinues the procedure before its completion.
5	GL	GL informs the applicant of the budget for the procedure and seeks the applicant's approval to continue.
6	GL	Actions of the GL following receipt of the applicant's approval: 1. On receipt of the payment and using the template provided by QN, contract the TI to undertake and report the practical work.
7	TI	Actions of the TI: 1. Organize and supervise the preparation of the test specimens as specified below. 2. Record and report the processing conditions used for each of the specimens. 3. Perform the laboratory tests as specified below. 4. Clean and photograph test specimens after testing as described below. 5. Send the following as instructed by QN: a. The completed report form for the laboratory testing b. Any salt spray test specimens and photographs. c. The control specimens. d. Any other results and photographs requested by QN.
8	EWG	EWG examines the report of the laboratory tests and evaluates any salt spray specimens. It reports to QN with its decision whether the results are satisfactory. If the results of the laboratory tests are declared to be satisfactory, it decides that the declaration of assessment be granted.
9	QN	Actions of QN: 1. Inform GL and the applicant of the decision. 2. Liaise with GL to ensure all appropriate invoices and fees have been paid by the applicant. 3. If a declaration of assessment is granted, include the process on the Qualanod website with its identification number, approval date, expiry date and specimen testing data as specified by EWG. 4. If the decision is negative: a. Inform the applicant that it may appeal.
10	Applicant	Informs QN that it wants to consider appealing against the EWG's decision.
12	QN	Initiates the appeal process (see below)

8.4.2 Procedure for the renewal of a declaration of assessment

15	QN	QN notifies GL about renewal about six months before the declaration of assessment expires.
16	GL	GL enquires of the applicant whether it wants to renew under the same terms as previously or different terms.
17	GL	Actions of the GL if the applicant wants to renew under the same terms: 1. Select a TI to carry out the practical work. 2. Determine how the specimens will be produced.

		3. Prepare a budget for the whole cost of the assessment and evaluation procedure.
18	GL	GL informs the applicant of the budget for the procedure and seeks the applicant's approval to continue.
19	GL	Actions of the GL following receipt of the applicant's approval: 1. On receipt of the payment and using the template provided by QN, contract the TI to undertake and report the practical work.
20	TI	Actions of the TI: 1. Organize and supervise the preparation of the test specimens as specified below. 2. Record and report the processing conditions used for each of the specimens. 3. Perform the laboratory tests as specified below 3. Clean and photograph test specimens after testing as described below. 4. Send the following as instructed by QN: a. The completed report form for the laboratory testing b. Any salt spray test specimens and photographs. c. The control specimens. d. Any other results and photographs requested by QN.
21	EWG	EWG examines the report of the laboratory tests, evaluates any salt spray specimens and, as appropriate, considers the experience of using the process since the declaration of assessment was first granted. It reports to QN with its decision whether the results are satisfactory. If the results of the laboratory tests and any previous experience are declared to be satisfactory, it decides that the declaration of assessment be renewed.
22	QN	Actions of QN: 1. Inform GL and the applicant of the decision. 2. Liaise with GL to ensure all appropriate invoices and fees have been paid by the applicant. 3. If a declaration of assessment is granted, include the process on the Qualanod website with its identification number, approval date, expiry date and specimen testing data as specified by EWG. 4. If the decision is negative: a. Inform the applicant that it may appeal.
	Applicant	Informs QN that it wants to consider appealing against the EWG's decision.
	QN	Initiates the appeal process (see below)

8.4.3 Appeals

27	QN	QN compiles the reports and sends them to the applicant.
28	Applicant	The applicant shall notify the QN within eight calendar days of receipt of the reports if it wants to appeal and, if so, whether it wants to see the unsatisfactory specimens and their comparators.
29	QN	QN acknowledges receipt of the notification and sends the specimens to the applicant and advises applicant of the appeal fee.
30	Applicant	The applicant confirms if they intend to appeal.
31	QN	QN issues appeal invoice for immediate payment.
32	Applicant	The applicant submits its appeal within eight calendar days of receipt of the notification or receipt of the specimens whichever is the latest. The appeal must include any further information including, if appropriate, the technical grounds on which the appeal is based. Any specimens must be returned before the next AWG meeting.
	QN	Confirms to AWG that the appeal fee has been paid. Provides AWG with information relevant to the case.
33	AWG	Actions of AWG on receipt of information relevant to the case and confirmation that the appeal fee has been paid: 1. Reject the appeal if no further information is provided by the applicant. 2. Review the information relevant to the case. 3. Decide whether to uphold the appeal. The decision of the AWG is final.

34	QN	Actions of QN: 1. Inform GL of the decision. 2. If the declaration of assessment / renewal is granted, include the process on the Qualanod website with its identification number, approval date, expiry date and specimen testing data as specified by EWG. 3. If the renewal is not granted, remove the process from the Qualanod website.

8.4.4 Annual fees

35	GL	On behalf of QN, GL collects from the applicant the annual fees determined by the EC.

8.5 Application for assessment

8.5.1 Basic requirements

The application shall be written in English. It shall include the following. EWG may ask for more information at its discretion.

- A description of the process.
- A technical data sheet showing the most important properties and instructions for the operation or use of the process.
- Information on the type(s) of anodizing with which the process will be used, and the associated anodized products.
- Information on product performance tests that can be applied for the assessment of the process and the definition of the testing procedures.

8.5.2 Changes to the process

If, after a declaration of assessment has been issued, the applicant changes the instructions for the operation of the process or the use or the formulation of a chemical product, the declaration of assessment shall be withdrawn.

8.5.3 Repetition

If the assessment of the process has been unsuccessful and the applicant wants the process to be tested again, it shall submit an application for testing. The application shall include a description of any changes to the instructions for the operation of the process or the use or the formulation of the chemical product. EWG may compare the instructions and data sheet provided by the applicant at the time of the initial application with those provided at the time of the application for repeat testing. EWG shall decide the requirements for a declaration of assessment to be granted.

The applicant may decide that it wants the application handled anonymously. If so, it shall make this clear in its application.

8.6 Specimen preparation (stage B)

The specimens shall be prepared in one of the following.

- In an SL's production line under the supervision of a person representing the TI.
- In the TI's pilot line or laboratory.
- In the applicant's pilot line or laboratory under the supervision of a person representing the TI.
- In an SL's pilot line or laboratory under the supervision of a person representing the TI.

The number of batches should be minimized to better enable any comparisons of specimens.

Special care should be paid to the preparation of specimens; they shall be free of defects. The applicant shall provide an analysis of the chemical composition of the metal if so requested by the EWG.

Because some of the tests could be comparative, the production of standard (reference) test specimens may be required. The processing conditions for the standard specimens shall be agreed with the EWG.

It is important that the chemical composition and microstructure of all the specimens are the same, especially for corrosion resistance tests. Therefore, specimens shall come from the same metal casting batch or coil.

The test specimens shall be as follows.

- Test specimens shall be AA 6063 or 6060 flat-panel extrusions or AA 5005 sheet with a thickness of about 2 mm. The specimens for artificial-atmosphere corrosion tests shall have dimensions not less than 150 mm x 70 mm x 1 mm.
- Test specimens of the required size shall be cut from larger areas of material using a guillotine or a saw before the application of the surface treatment processes. Any burrs shall be removed without damaging adjacent areas of the surfaces.

Test specimens shall be marked for identification purposes before the application of the surface treatment processes. The marking shall be made as small as is practical and on those areas of the specimens that are not subjected to visual assessment. Specimens for artificial-atmosphere corrosion tests shall have marking that is durable and remains legible over the whole period of the test. Stamping is a suitable method.

The representative of the TI should ensure that he records and reports the processing conditions used for each of the specimens. This is because significant variations could arise if, for example, colouring conditions were not the same for different thickness coatings on standard and new-process specimens.

8.7 Procedures for the laboratory tests (stage C)

The tests shall be agreed with the EWG. They shall be selected from those described in clause 9 of the Specifications and from the list provided by the applicant. The anodizing-type decision tree might be helpful.

Each test shall be carried out on triplicate specimens.

Test specimens before testing and control specimens shall be safely stored in a room with a controlled temperature and a relative humidity of 65% or less, or in a desiccator, or sealed in plastic bags with desiccant.

It is important to maintain specimen data records particularly to prevent confusion over the processing conditions used for specimens tested by different organizations. The specimen marking and the records shall use the following identification system of two letters and two numbers.

- S indicates the standard process (If required). N indicates the process being assessed.
- Numbers indicate coating thickness, e.g.10 for AA 10.
- C indicates a coloured specimen. U indicates an uncoloured specimen.
- Y indicates a sealed specimen. X indicates an unsealed specimen.
- The final number, 1 to 22, identifies the individual specimen in the set.

Thus, N10UX3 would identify the third specimen from the set of specimens produced using the process being assessed.

8.8 Procedures for the artificial-atmosphere corrosion tests

If these tests are to be applied and if no other standard procedure is indicated, these tests are performed as specified in ISO 9227 for the acetic salt spray (AASS) or the neutral salt spray (NSS) tests.

The corrosivity of the salt spray cabinet shall be checked following the method for evaluating cabinet corrosivity specified in ISO 9227. During permanent operation, the time interval between corrosivity checks shall not be more than three months. The test report shall include the date of the last corrosivity check.

The duration of the AASS test shall be 1000 h. The duration of the NSS test shall be 336 h. The specimens shall not be cleaned during exposure.

On completion of the salt spray test, the specimens shall be washed with water (without scrubbing) to remove corrosive agents from the surface that could otherwise promote further corrosion during storage

and transportation and dried without applying heat. After cleaning, photograph and measure the coating thickness of all the test specimens. Send the specimens, the photographs and the thickness data as instructed by QN.

8.9 Evaluation of salt spray test results

The aim of the test is to assess the resistance to pitting corrosion of the aluminium substrate. Thus, the EWG shall rate the corrosion following the method specified in ISO 10289 and the instructions below.

1. Mask to define an inspection area of 50 cm^2 on each specimen.
2. Use dot charts from ISO 10289 and/or ISO 8993 to determine A, the percentage of the inspection area showing base metal corrosion.
3. Determine the rating, R_P, if necessary, by using the formula $R_P = 3\ (2 - \log A)$. Note: for $A \leq 0{,}05\%$, $R_P = 10$.
4. Calculate:
   iii. R_{PN}, the average of the R_P values for each set of new-process specimens
   iv. R_{PS}, the average of the R_P values for each set of standard specimens.
5. Compare each R_{PN} with its equivalent R_{PS}. If $R_{PS} - R_{PN} > 1$, then the new-process specimens are unsatisfactory.
6. If any of the sets of new-process specimens is unsatisfactory, then the result of the AASS testing is negative.
7. Report the values of R_P for every specimen and send the results to QN.
8. Where multiple evaluations are carried out separately at different locations, EWG compares the results. The EWG makes the final decision following the majority result.

The EWG may take other factors into consideration when deciding whether the specimens prepared using the process performed satisfactorily in the salt spray test. In particular, no specimen should show, after the NSS test, any corrosion pits except those within 1,5 mm of jigging marks or corners.