

General Regulations



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Contents

I - The use of the Qualanod logo by third parties	2
II - Procedure for carrying out inspections of sub-licensees' plants	3
III - Procedure for applications from prospective sub-licensees	8
IV - Procedure to renew a sub-licence	11
V - Procedure for the withdrawal of a sub-licence	13
VI - Procedure for the approval of new processes and products	14

General Regulations:

I - The use of the Qualanod logo by third parties



The Qualanod logos are owned by the Association for Quality Control in the Anodizing Industry (Qualanod), Zurich, and are described in the Qualanod Specifications.

Some businesses using anodized products may wish to use the appropriate logo on their finished products or business literature depending on the type of anodizing used.

They shall request written authorization which may be granted on condition that they:

- undertake to use solely aluminium products anodized by anodizing plants licensed to do so;
- undertake to submit all documents that refer to QUALANOD to the national associations for approval or directly to QUALANOD in countries where there is no national association;
- undertake to undergo inspections and controls by the national associations or QUALANOD.

Such authorization may require payment of an annual fee. Authorization will be withdrawn automatically if any of the conditions set out above is not met.

General Regulations:

II - Procedure for carrying out inspections of sub-licensees' plants



QN means Qualanod and includes its secretariat and committees. It supervises the general licensees and may take on more or less responsibility depending on the resources of any general licensee.

GL means general licensee which may include national associations and Qualanod. GLs can be accredited to ISO/IEC 17065 "Conformity assessment -- Requirements for bodies certifying products, processes and services".

SL means sub-licensee or prospective sub-licensee

TI means testing institute

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 and sub-clauses referred to below are those of the Specifications.

1. All information concerning the inspection results and their assessment shall be confidential.
2. The TI nominates a suitably qualified individual who has been approved by QN, referred to as the inspector, to carry out the inspection.
3. 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 form.
4. The GL notifies the TI which licensable products are to be covered by the inspection (see clause 8).
5. The inspector takes to all inspections the minimum mandatory equipment as shown in the table below.

Minimum mandatory equipment of inspectors

TESTS		EQUIPMENT
All types of anodizing THICKNESS		Apparatus + references
Architectural, industrial (unless sealing tests are not required by the customers) and decorative anodizing SEALING (destructive)	MASS LOSS	Two calibrated weights for checking analytical balance
SEALING (non-destructive)	ANOTEST if required	References
	DYE SPOT if required	Dye solution for the test providing its carriage is allowed by the airport security control ISO 2143 chart
ABRASION if required		<ul style="list-style-type: none"> • Glass-coated abrasive paper previously validated using type P and type F standard specimens* • Resilient support for the paper, eg rubber • Type P and type F standard specimens*
Architectural, industrial (unless sealing is not required by the customers) and decorative anodizing pH METER		Buffer solutions or pre-calibrated pH meter
All types of anodizing SPECIFICATIONS AND TESTING PROCEDURES		Latest version of the Specifications and all update sheets

* 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.

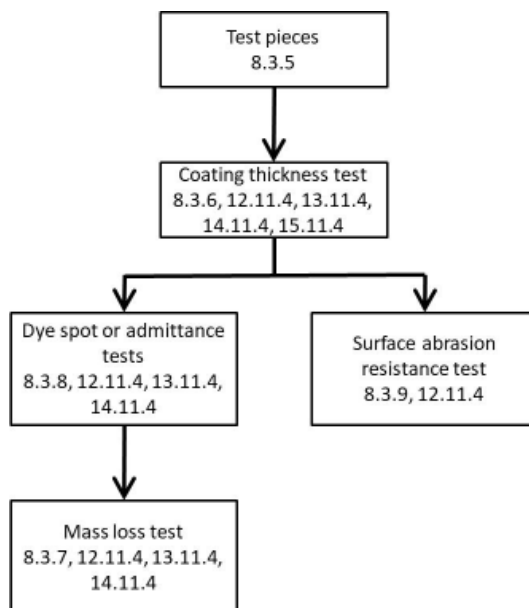
6. The inspector carries out the inspection and completes the inspection report form including the inspector's conclusions which the SL also signs and may add comments. References for the processes of an inspection are shown by the table below as the relationships between the inspection report form,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

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

Inspection report form	Specifications main clauses	Specifications appendices X = 12, 13, 14 or 15
2 The current inspection visit	6 Licensing anodizers	
3 General	8 Inspections	X.11 Inspections
4 Agreement with the customer	8.3.3 Agreements with customers 8.3.11 Register of complaints	<i>X.4 Agreements with customers</i> X.5 Complaints
5 Processes of anodizing plants	8.4 Inspection of processes	X.11.5 Processes <i>X.8 Requirements concerning processes</i> X.9.5 Storage of products
6 Laboratory and testing equipment	8.3.4 Laboratory	<i>X.6 Laboratory and testing apparatus</i>
7 In-house control	8.3.10 In-house control	<i>X.9 Methods for process control</i> <i>X.10 Production control records</i>
8 Inspection of anodized products	<i>8.3 Inspection of products</i>	<i>X.11 Inspections</i>
9 Labelling	8.3.2 Use of the quality label <i>7 Regulations for the use of a Qualanod quality label</i>	X.3 Quality label
10 Conclusions	6.1.2 Inspections	<i>X.11.2 Nonconformities</i>

7. 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.

8. Inspector carries out product tests as follows. The flow diagram below shows relevant sections of the Specifications. Note that sealing tests are not required for hard anodizing.



Test pieces.

The inspector marks samples for testing to prevent them from being exchanged.

Coating thickness test.

The inspector should test only flat pieces.

The inspector checks all sheet and strip pieces with a significant surface greater than 2 m².

For other parts, the inspector applies statistical control on samples taken according to Specifications 8.3.6 table 1; as far as possible, s/he checks at least 30 parts for each anodizing type that is being inspected. S/he endeavours to include lots representing all anodizing lines and sealing processes operated by the licensee. Examples of sealing processes are hot water, steam, two-step cold sealing based on a nickel fluoride solution, and medium-temperature sealing based on a nickel salt solution.

Dye spot or admittance tests.

If a mass loss test is required, the inspector carries out ten dye spot or admittance tests, as applicable (see 9.3.3 and 9.3.4), on samples selected at random from those selected for the thickness tests but endeavouring to include material from all the anodizing lines and sealing processes. The test (dye spot or admittance) is chosen at the inspector's discretion but s/he will normally select the method that was used by the SL for the selected lot. This is omitted if neither test is applicable, e.g. a dark bronze finish with cold sealing.

Mass loss test.

The samples are selected from those selected for the thickness tests, and are the ones with the highest dye spot or admittance values and preferably coloured- rather than clear-anodized. One mass loss test is carried out for each anodizing line and/or sealing process. The aim is to carry out the minimum number of mass loss tests that include all anodizing lines and all sealing processes. Here are some examples.

Number of anodizing lines	1	1	2		2		2		2	
Line identification	A	A	A	B	A	B	A	B	A	B
Sealing processes	HW	HW & CS	HW	HW	HW	MTS	HW & CS	HW	HW & CS	HW & MTS
Number of mass loss tests	1	2	1	1	1	1	1 (CS)	1	1 (CS)	2 (HW & MTS)
HW = hot water sealing. CS = cold sealing. MTS = medium-temperature sealing										

The method of 9.3.1 or 9.3.2 is applied depending on which method was used by the SL for the lot from which the sample was taken. If a mass loss test is performed at the testing institute, it must be completed within 14 days.

It is recommended that inspectors try to avoid taking samples for mass loss tests from hollow profiles and, if unavoidable, take samples only from the ends of hollow profiles with no uncoated areas. They should calculate the sum of the inside and outside surface areas of a hollow profile for the calculation of the mass loss per dm².

Repetition of the mass loss tests in the event of an unsatisfactory result is no longer required.

Surface abrasion resistance test.

This applies only for architectural anodizing. If the samples taken for thickness measurement come from lots of thickness classes AA 20 or thicker, the inspector performs a surface abrasion resistance test on the sample with the highest thickness. The test is not required for thickness classes thinner than AA 20 irrespective of the measured thickness.

The test method (9.6.1 or 9.6.2) is chosen at the inspector's discretion. If the method of 9.6.1 is used and gives a negative result that is disputed by the anodizer, then the referee method of 9.6.2 is applied to determine whether the surface abrasion resistance is acceptable.

9. This section describes the procedures for inspection visits to plants licensed for more than one type of anodizing but where there is insufficient or no material available for the thickness tests of one or more types. The procedure may not be applied at more than two [or three] consecutive inspections for any one licensable product.

Sufficient material

The amount of material required for the thickness tests is given in the Specifications 8.3.6. This says that at least 30 parts for each anodizing type shall be tested. If a lot consists of 1 to 10 parts, then all are tested. If a lot consists of 11 to 200 parts, then ten randomly selected parts are tested. Sampling for larger lot sizes is also included.

Here are some examples of sufficient material for one anodizing type.

- Three lots each consisting of 11 to 200 parts. Ten parts are selected from each lot for testing.
- Two lots consisting of 11 to 200 parts and five lots each consisting of two parts. Ten parts from each of the first two lots and all the parts from the other five lots are tested.
- One lot consisting of 11 to 200 parts and four lots each consisting of five parts. Ten parts from the first lot and all the parts from the other four lots are tested.
- Ten lots each consisting of three parts. All the parts are tested.
- 30 lots each consisting of one part. All the parts are tested.

Procedure during the inspection visit

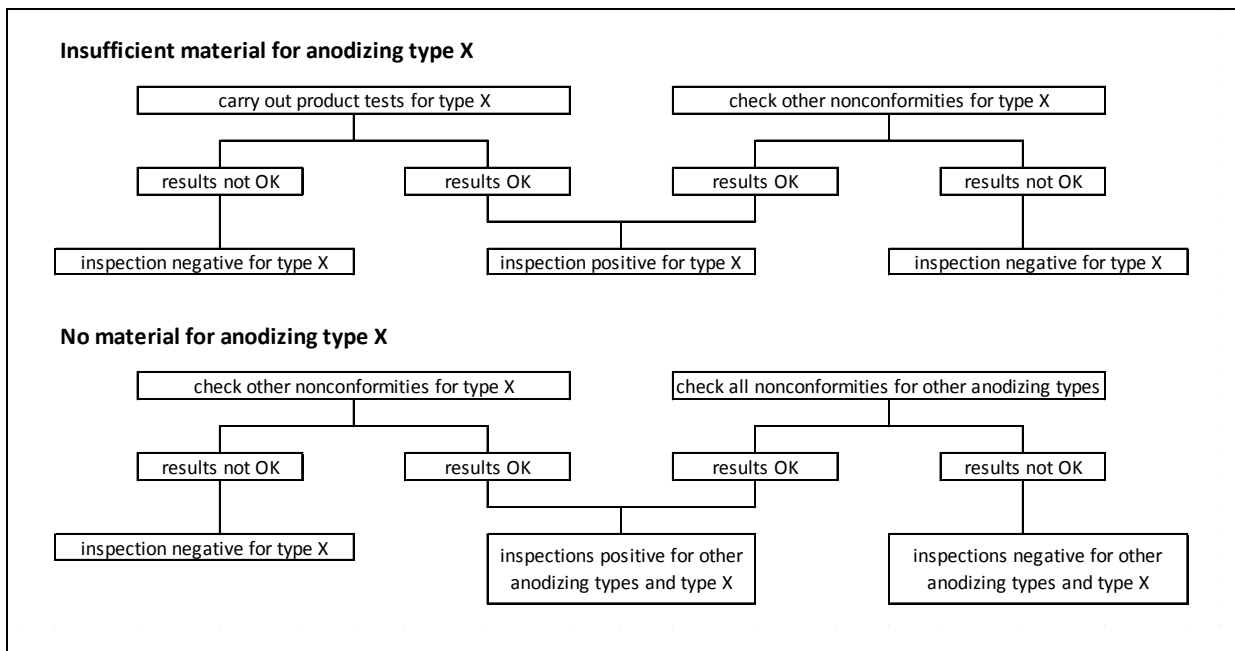
[1] The inspector ascertains how much material is available for each of the anodizing types that are to be inspected. In the description below, "type X" refers to an anodizing type for which insufficient or no material is available.

Note 1. For the inspections to continue there must be sufficient material of at least one of the anodizing types. Otherwise the inspections are negative for all those types and a repeat inspection visit is necessary.

[2] The inspector carries out the inspections as far as possible for all the types that are to be inspected.

[3] The inspector performs coating thickness tests on material from lots that are available even if there is insufficient material to provide 30 parts for one or more anodizing type.

- [4] The inspector selects samples for sealing tests (dye spot, admittance, mass loss) and the surface abrasion resistance test as applicable. See General Regulations II-8.
- Note 2. The inspection for type X shall not be positive if full coating thickness tests (at least 30 samples) for another type are negative.*
- Note 3. If type X is architectural, industrial or decorative anodizing, then the inspection for type X shall not be positive unless one or more mass loss tests have been carried out and all were successful. (Mass loss tests are independent of anodizing type – see General Regulations II-8.)*
- Note 4. If type X is architectural anodizing and one or more of the lots tested consists of coatings of class AA 20 or thicker, then the inspection for type X shall not be positive unless the surface abrasion resistance test is successful.*
- [5] When the inspector completes the inspection report form, he notes where there was insufficient material. He also completes Tables 1 to 4 of the inspection report form, as applicable, giving lot sizes and the results from all the parts tested.
- [6] The procedure to determine the result of the inspection for anodizing type X is given in the flow diagrams below. “Other nonconformities” are ones that do not depend on the availability of material.



General Regulations:

III - Procedure for applications from prospective sub-licensees



QN means Qualanod and includes its secretariat and committees. It supervises the general licensees and may take on more or less responsibility depending on the resources of any general licensee.

GL means general licensee which may include national associations and Qualanod. GLs can be accredited to ISO/IEC 17065 "Conformity assessment -- Requirements for bodies certifying products, processes and services".

TI means testing institute and includes its inspectors

PL means prospective sub-licensee including when an existing licensee wants to use the label for one or more additional licensable products.

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.

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

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 or a sub-licence was withdrawn, a new application cannot be accepted until six 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. 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 II - 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.**
7. TI carries out inspections as instructed by GL.
 - 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.
 - i. TI informs GL and QN that unannounced inspection visits are not possible and suggests other arrangements.
 - ii. QN decides or approves other arrangements and notifies TI and GL.

8. TI records results of each inspection visit on the inspection report form provided by QN.
 - a. The inspector and the PL sign off the inspector's conclusions; the PL may add comments.
9. TI sends inspection report to GL.
10. GL sends a copy of the inspection report to QN within three months after the inspection.
11.
 - a. An accredited GL assesses the results in the inspection form and decides whether the inspection visit was fully satisfactory or fully unsatisfactory, or partially satisfactory if it was satisfactory for some of licensable products for which the PL wanted to use the label but not for others (QN may be consulted for guidance).
 - b. QN makes the decision for a non-accredited GL and informs it of the results and, if they are not deemed fully satisfactory, provides a full explanation for the conclusion.
12. GL sends PL: i) notification of the decision; ii) a copy of the inspection report; iii) if the results of the inspection visit are not deemed fully satisfactory, a full explanation for the conclusion and the deadline for submitting an appeal.
 - a. An accredited GL sends to QN copies of i) and iii).
13. If the GL receives an appeal from the PL (which must be within ten days after the PL has received notification of the decision):
 - a. An accredited GL re-assesses the results in the inspection form and decides whether the inspection visit was fully satisfactory, fully unsatisfactory or partially satisfactory (QN may be consulted for guidance). It sends PL and QN notification of its decision and a full explanation for that conclusion.
 - b. a non-accredited GL notifies QN of the appeal.
14.
 - a. If PL is not satisfied with the result of an appeal to an accredited GL, it may appeal to QN.
 - b. QN deals with an appeal to a non-accredited GL.
15. QN sends GL and PL notification of its decision and a full explanation for that conclusion. QN's decision is final.
16. Following an unsatisfactory or partially satisfactory inspection visit where plant and/or equipment did not meet the requirements, another inspection visit may be made only when the PL has given notification to the GL that the deficiencies have been rectified.
 - a. GL informs the TI when a repeat inspection may take place
 - b. TI carries out another inspection as instructed by the GL.
17. If the PL decides to withdraw its application for a licence for one or more licensable products, it notifies the GL. The GL informs the TI.
18. If at least two inspections are satisfactory for each licensable product for which PL seeks to use the label, the GL can grant a sub-licence to the PL subject to ratification by QN.
19. Following ratification from QN, the GL and PL sign a contract containing at least the requirements exhibited by the sample contract below. This does not apply in the case of existing sub-licensees.
20. GL notifies QN that the contract has been signed.
 - 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

General Regulations:

IV - Procedure to renew a sub-licence



QN means Qualanod and includes its secretariat and committees. It supervises the general licensees and may take on more or less responsibility depending on the resources of any general licensee.

GL means general licensee which may include national associations and Qualanod. GLs can be accredited to ISO/IEC 17065 “Conformity assessment -- Requirements for bodies certifying products, processes and services”.

SL means sub-licensee

TI means testing institute and includes its inspectors

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.

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

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 II - 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.
 - a. TI carries out inspections unannounced unless other arrangements are approved by QN
 - i. TI informs GL and QN that unannounced inspections are not possible and suggests other arrangements
 - ii. QN decides or approves other arrangements and notifies TI and GL.
4. TI notifies the GL if unforeseen circumstances prevent it from carrying out an inspection
 - a. On receipt of that notification, the GL may suspend inspections for a maximum of 12 months. It consults the TI in reaching its decision.
 - b. GL notifies SL, TI and QN of its decision.
 - c. If no inspection has taken place within the twelve month period, the GL withdraws the sub-licence.
5. TI records results of each inspection on the inspection report form provided by QN
 - a. The inspector and the SL sign off the inspector's conclusions; the SL may add comments.
6. TI sends inspection report to GL.
7. GL sends a copy of the inspection report to QN within three months after the inspection.

8.
 - a. An accredited GL assesses the results in the inspection form and decides whether the inspection visit was fully satisfactory or fully unsatisfactory, or partially satisfactory if it was satisfactory for some of licensable products for which the SL wanted to use the label but not for others (QN may be consulted for guidance).
 - b. QN makes the decision for a non-accredited GL and informs it of the results and, if they are not deemed fully satisfactory, provides a full explanation for the conclusion.
9. GL sends SL: i) notification of the decision; ii) a copy of the inspection report; iii) if the results of the inspection visit are not deemed fully satisfactory, a full explanation for the conclusion and the deadline for submitting an appeal.
 - a. An accredited GL sends to QN copies of i) and iii).
10. If the GL receives an appeal from the SL (which must be within ten days after the PL has received notification of the decision):
 - a. an accredited GL re-assesses the results in the inspection form and decides whether the inspection visit was fully satisfactory, fully unsatisfactory or partially satisfactory (QN may be consulted for guidance). It sends SL and QN notification of its decision and a full explanation for that conclusion.
 - b. a non-accredited GL notifies QN of the appeal.
11.
 - a. If SL is not satisfied with the result of an appeal to an accredited GL, it may appeal to QN.
 - b. QN deals with an appeal to a non-accredited GL.
12. QN sends GL and SL notification of its decision and a full explanation for that conclusion. QN's decision is final.
13. Following an unsatisfactory or partially satisfactory inspection visit where plant and/or equipment did not meet the requirements, a repeat inspection visit is carried out within two months of the SL receiving from the GL notification that the inspection was not fully satisfactory.
 - a. GL informs the TI when a repeat inspection may take place
 - b. TI carries out another inspection as instructed by the GL.
14. If the SL decides to withdraw its application for a licence for one or more licensable products, it notifies the GL. The GL informs the TI.
15. If at least two inspections are satisfactory per calendar year (1st January to 31st December) for each licensable product for which SL seeks to use the label, the GL can renew the SL's sub-licence subject to ratification by QN.
 - a. In other circumstances, QN or GL, if it is accredited to ISO/IEC 17065, decides on renewal.
16. GL notifies QN 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.
17. 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.

General Regulations:

V - Procedure for the withdrawal of a sub-licence



QN means Qualanod and includes its secretariat and committees. It supervises the general licensees and may take on more or less responsibility depending on the resources of any general licensee.

GL means general licensee which may include national associations and Qualanod. GLs can be accredited to ISO/IEC 17065 “Conformity assessment -- Requirements for bodies certifying products, processes and services”.

SL means sub-licensee

TI means testing institute and includes its inspectors

“In writing” means by correctly addressed email or by correctly stamped and addressed letter

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.

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

1. GL withdraws 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.
 - a. In other circumstances QN or the GL, if it is accredited to ISO/IEC 17065, decides.
2. TI notifies the GL if unforeseen circumstances prevent it from carrying out an inspection
 - a. On receipt of that notification, the GL may suspend inspections for a maximum of 12 months. It consults the TI in reaching its decision.
 - b. GL notifies SL, TI and QN of its decision.
 - c. If no inspection has taken place within the twelve month period, the GL withdraws the sub-licence.
3. GL withdraws 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).
 - a. GL gives SL four months prior notice in writing of any changes to those regulations before those changes become effective.
4. The GL 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 the GL issues instructions to the contrary.
5. The GL withdraws the sub-licence if the SL has been proven not to respect relevant national laws.
6. If QN can demonstrate that conditions for the withdrawal of a sub-licence have been met without the GL having intervened, it may direct the GL to withdraw the sub-licence.
7. If a sub-licence is withdrawn, GL 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 and QN of withdrawal of a sub-licence.

General Regulations:

VI - Procedure for the approval of new processes and products



1. Introduction

It is important that new processes and products which are used in the production of anodized aluminium for external architectural applications are tested and approved by QUALANOD. This is because the effects of weathering can be long term and are very variable, and cannot be effectively simulated by laboratory tests. The testing and approval of new processes and products for use in the production of anodized aluminium for other applications is not necessary if effective laboratory tests or simulations of service conditions can be applied.

A new process or product requires testing and approval if it could affect the outdoor service performance of the anodized aluminium. This includes new processes and products for anodizing and sealing but can include other new processes and products applied after anodizing.

Licensees that are licensed for products of clause 12, architectural anodizing, shall use only processes and products for anodizing and subsequent processes in an anodizing line that are well-established for use in anodizing lines or have current approval from QUALANOD. Established processes and products include oxalic acid additions to anodizing baths, dyeing (including fixing the dye using a solution containing a nickel salt), colouring by the electrodeposition of a metal or metal oxide, hydrothermal sealing (including pre-sealing in a triethanolamine solution) and two-step cold sealing using a solution containing nickel fluoride.

2. Definitions

QN means QUALANOD secretariat

EC means QUALANOD executive committee

TC means QUALANOD technical committee or its nominated working group

GL means general licensee which may include national associations and Qualanod. GLs can be accredited to ISO/IEC 17065 "Conformity assessment -- Requirements for bodies certifying products, processes and services".

SL means sub-licensee

TI means testing institute (organization accredited to ISO 17025 and mandated by a GL to carry out inspections and/or tests)

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

The clauses referred to below are those of this document.

3. Assessment and evaluation

The assessment can comprise the following stages.

- A. A review by TC of the information sent by the applicant.
- B. Independent laboratory tests carried out by a TI.
- C. Outdoor weathering tests of specimens for one and three years (except for renewals – see below)
- D. Evaluation by the TC.

The applicant shall bear all the costs associated with the specimen preparation and the testing of stages B and C.

4. Approvals

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

Final approval may be granted only after the successful completion of the three years' outdoor exposure (stage C), and is valid for three years. It may be renewed every three years.

The applicant may apply for a renewal of the final approval (see section 6 below). For the renewal to be granted, stages A, B and D have to be successfully completed. Outdoor exposure testing is normally not necessary.

5. Responsibilities

5.1	Applicant	Enquires of QN whether the use of the process or product is well-established or has current approval. If necessary, QN confers with TC. If the response is positive, the process or product may be used by SLs. If the response is negative, go to next step.
5.2	Applicant	Sends application to GL. <ul style="list-style-type: none"> GL sends application to QN for consideration by TC
5.3	TC	Reviews the information from the applicant and decides whether it is complete.
5.4	QN	Informs applicant and GL of the TC's decision. If the information is incomplete, requests the additional information. If the information is complete, go to next step.
5.5	GL	Informs applicant and QN which TI will conduct the tests.
5.6	Applicant	<ul style="list-style-type: none"> Arranges for the provision of test specimens prepared as specified in clause 7. Arranges for the thickness and gloss data described in clause 7 to be sent to QN. Instructs the TI to perform the laboratory tests as specified in 8.1 and 8.2, and to send the test results including the salt spray test specimens to QN. Arranges for the outdoor exposure tests to be carried out as specified in 9.1, and including: (i) sending written confirmation to the GL (GL informs QN) that the specimens have arrived at the two exposure sites and that the exposure tests have started; (ii) the withdrawal of specimens at the required times: (iii) sending the withdrawn specimens to QN.
5.7	QN	Forwards to TC the laboratory test results and salt spray test specimens on completion of those tests, and the withdrawn specimens after one and three years of outdoor exposure.
5.8	TC	Evaluates the laboratory test results and the salt spray test specimens returned after completion of those test. If the assessment is unsuccessful, it recommends that the approval process is terminated. QN informs the applicant and GL of the decision.
5.9	TC	Evaluates the laboratory test results and the specimens returned after one year of outdoor exposure. If the assessment is successful, it recommends that the EC grants provisional approval of the new process or product for a period of two years. If the assessment is unsuccessful, it recommends that the EC terminates the approval process.
5.10	EC	Decides whether to grant provisional approval of the new process or product for a period of two years. <ul style="list-style-type: none"> QN informs the applicant and GL of the decision. If provisional approval is granted, QN includes the new process or product on the QUALANOD website with its approval number and indicating "provisional approval".

5.11	TC	Evaluates the specimens returned after three years of outdoor exposure and considers the experience of the new process or product since the granting of provisional approval. If the assessment is successful, recommends that the EC grant final approval of the new process or product for a period of three years.
5.12	EC	Decides whether to grant final approval of the new process or product for a period of three years. <ul style="list-style-type: none"> • QN informs the applicant and GL of the decision. If final approval is granted, QN includes the new process or product on the QUALANOD website with its approval number and indicating "final approval".

Renewal process of final approval

5.13	QN	Informs applicant and GL six months before final approval expires.
5.14	Applicant	Informs GL and QN whether it wants to renew final approval.
5.15	GL	Informs applicant and QN which TI will conduct the laboratory tests if it is decided to renew final approval.
5.16	Applicant	<ul style="list-style-type: none"> • Arranges for the provision of test specimens prepared as specified in clause 7 for only the laboratory tests. • Arranges for the thickness and gloss data described in clause 7 to be sent to QN. Instructs the TI to perform the laboratory tests as specified in 8.1 and 8.2, and to send the test results including the salt spray test specimens to QN.
5.17	QN	Forwards test results and specimens to TC.
5.18	TC	Evaluates the laboratory test results and considers the experience of the new process or product since the granting of final approval. If the assessment is successful, recommends that the EC renew final approval of the new process or product for a period of three years.
5.19	EC	Decides whether to renew final approval of the new process or product for a period of three years. <ul style="list-style-type: none"> • QN informs the applicant and GL of the decision.

6. Application for assessment

The application shall be written in English. It shall include a description of the process or product, a technical data sheet showing the most important properties and instructions for the operation or use of the process or product. TC may ask for more information at its discretion.

If the applicant changes the instructions for the operation of a process, the use of a product or the formulation of a chemical product, the process or product shall not be used by licensees until it has been approved by QUALANOD. If the applicant wants the process or product to be used, it shall submit an application as specified in clause 5. The application shall include a description of the changes. TC 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.

If the assessment of a new product or process has been unsuccessful, and the applicant wants the new product or process to be tested again, it shall submit an application as specified in clause 5. The application shall include a description of any changes to the instructions for the operation of the process, the use of the product or the formulation of the chemical product. TC 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.

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

7. Specimen preparation

The specimens shall be prepared in one of the following.

- In the TI's laboratory or pilot line.
- In the applicant's laboratory or pilot line under the supervision of a person representing the TI.
- In an SL's laboratory or pilot line under the supervision of a person representing the TI.
- In an SL's production line under the supervision of a person representing the TI. This is permitted only for processes or products that already have final approval from QUALANOD.

Special care should be paid to the preparation of specimens; they shall be free of defects. Due to the fact that 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 TC.

Specimens produced with the new process or product 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 TC decides otherwise, the processing conditions for the standard specimens shall be as follows.

- Specimens shall be subject to surface preparation E6 as described in ISO 7599.
- 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 $20 \text{ }^\circ\text{C} \pm 0,5 \text{ }^\circ\text{C}$, and agitated by air agitation or solution recirculation. The current density shall be $1,5 \pm 0,1 \text{ A/dm}^2$.
- Different specimens of each class shall be clear-anodized aluminium and colour-anodized aluminium coloured to a dark bronze (C34) using a tin-based electrolyte.
- Specimens shall be sealed in deionized water at a temperature no lower than $96 \text{ }^\circ\text{C}$ for 3 min per micrometre of coating thickness. An anti-smut additive shall be used.

Test specimens representing the new process or product shall be produced using the same processing conditions as for the standard specimens except those conditions associated with the new process or product.

Specimens for laboratory tests and for outdoor exposure (not required for a renewal) 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 set shall comprise at least 21 specimens and one specimen retained for control purposes. Control specimens shall be made available to TC as requested to determine changes in properties, eg colour, as a result of exposure of test specimens. The number of specimens required is summarized in table 1 (next page).

Table 1. Distribution of test specimens

Test (see clauses 8 & 9)	Number of specimens per set	Total number of specimens
Control	1	8‡
Mass loss test	3	24
Dye spot, admittance and surface abrasion 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	22	176
‡ The specular gloss at 60° 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. Before applying laboratory or outdoor exposure tests, the specular gloss at 60° 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 to QN.

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 or product
- 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 or product.

8. Laboratory tests (stage B)

8.1 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 appendix A 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.

- 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 resistance to wear/abrasion (9.6.1).

8.2 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. Visual examination (including photography) of the test specimens to make a subjective evaluation of the degree of deterioration may be carried out after 500 h and/or 750 h as well as after 1000 h. If such an examination is carried out, the results shall be included in the test report. On completion of the test, the specimens shall be cleaned and the corrosion rated following the method specified in ISO 8993.

8.3 Evaluation of AASS test results by the Technical Committee

On receipt of the test report including the corrosion ratings, the TC shall evaluate those results using the following methodology. The difference between the median letter-ratings of the test specimens using the new process or product and those of the standard specimens shall be no more than two letters for one or more of the four sets of specimens. Below is an illustrative example of the letter ratings of corroded specimens after the AASS test; the median letter-ratings are in lower case. The results from the clear finishes and the AA 20 coloured finish are satisfactory but those from the AA 15 coloured finishes are unsatisfactory because the difference between the median letters is more than two letters (b compared with e). Thus, the results from one of the sets of specimens are unsatisfactory and so the new process or product would be deemed unacceptable.

Table 2. Illustrative example of AASS ratings

	Sets of specimens			
	AA 15, clear finish	AA 15, coloured finish	AA 20, clear finish	AA 20, coloured finish
New process or product	B c D	E e G	B c E	D e E
Standard	A b B	B b D	A b B	A c C

9. Outdoor weathering tests (stage C)

9.1 Procedures for outdoor exposure testing

Outdoor exposure tests shall be applied to specimens produced with the new product or 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 on a case-by-case basis by TC. In making its decision, TC 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 be in compliance with the requirements of ISO 8565:2011 "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 cleaned by washing 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.

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.

9.2 Evaluation of outdoor exposure test results by the Technical Committee

On receipt of the outdoor exposure test specimens and after making a visual examination, the TC shall clean the specimens and make evaluations as it deems necessary.