



# Guideline for Remote Inspection for Coater Plants

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## 1 Introduction

The COVID-19 pandemic influences our daily business on a massive scale. International and even national travelling is particularly inhibited, as well as the free transfer of goods. Several coating plants follow strict policies of social distancing limiting the access to visitors, especially the inspectors.

In Germany, a stepwise re-opening of the social life is already in discussion/preparation, giving some prospects of reaccepting inspections to be carried out under certain health and safety restrictions. Some inspection bodies (e.g. IFO) already started the preparation for this procuring safety equipment and training the inspectors how to use. An example video of IFO Germany can be watched on their LinkedIn account (<https://www.linkedin.com/company/ifo-gmbh/?viewAsMember=true>)

On the other hand, we are facing limited international travelling for a longer period, demanding on other, creative solutions for inspections to be carried out in a proper way. One possibility can be the concept of “remote-inspections” to be used during the COVID-19 pandemic and the corresponding travel restrictions. In Germany the remote solution is officially approved by the German accreditation body DAKKs.

Therefore, this paper shall give a guideline for online inspections to be conducted in a comparing quality of the usual on-site inspections. **This includes the philosophy of unannounced inspections.**

## 2 Requirements and Procedure

This section, the requirements for carrying out online inspections are defined.

### 2.1 Hardware Requirements

Technical requirements for the coating plants are:

- Camera (can be included in a portable device)
- Microphone und Speaker, ideal would be a headset (see picture in the appendix)
- Fast internet at least in the laboratory
- Ideal would be a portable device like a smartphone or tablet with conferencing apps
- Device for charging

During the audit, the inspector uses two screens; one with the checklist to be filled and one with the videoconference. In order to carry out “remote-inspections”, it needs a special training for the inspectors.

**IFO Germany offers their support to other inspection bodies.**



## 2.2 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 and secure (following the EU data protection law) video-conferencing platform will be met between the testing body and coater (e.g. in Europe and Asia: Teams, Skype, GoToMeeting etc. Middle East: Teams). 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 “checklist” 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 coater is made aware of this.

## 2.3 Procedure for Remote Inspection

In the morning, the inspector calls the licence holder to carry out an inspection. As the technical requirements are 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 chapter 4). 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 as flattened copy (no possibility for changes) to the company for their signature. Finally, the inspector phases the checklist into the certification process in a usual way.

## 2.4 Data Protection

The video material of the inspection will not be shown to third parties and kept confidential between coater 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** for coaters (MIR-Coat).

# 3 Checklist for the Coating Plant

This checklist should be provided to the coaters during the feasibility check, making the flow of the inspection focussed.

## 3.1 Starting the Audit

- Prepare 4-8 panels AA 5005 for mechanical tests.
- Prepare 2 panels (profile section) AA 6060/6063 for etching rate determination.
- Prepare 2 panels (profile section) AA 6060/6063 for coating weight determination.
- Depending on RN1, RN2 and Seaside, prepare 3, 6 or 9 profile sections for corrosion tests at the testing laboratory (current production or production from the last days). The size of the flat surface shall be 8 x 15 cm.
- Prepare 3 profile sections for boiling test in DI-water
- Put the panels, profiles and profile sections on a traverse / jig and pre-treat them in the production line



### 3.2 *Pre-Treatment*

- With prepared panels is to process:
  - on 2 panels -etching rate determination
  - on 2 panels- coating weight determination
  - the other 4-8 panels 5005 will be pre-treated and painted
- Make recording of temperature in the drying oven (e.g. temp strips) and provide access to the inspector
- Take samples from the pre-treatment baths for determination of the bath parameters

### 3.3 *Painting and Stoving*

- Notice data of powder paint used (photo of the powder box, better technical datasheet)
- Only QUALICOAT approved powder will be accepted during the inspection.
- Make recording of temperature characteristics in the curing stove

### 3.4 *Mechanical Tests*

- On the painted samples carry out following test:
  - Impact Test
  - Crosscut Test
  - Bend Test
  - Thickness
  - Gloss

### 3.5 *Finished Pieces*

- Prepare 30 painted profiles, preferable from 3 orders, with paint data, lot size, line number and order numbers for coating thickness determination.
- Prepare the 3,6 or 9 cut-off pieces for the corrosion tests for the testing laboratory
- Size of the samples is 8x15 cm
- **Show the labelling to the inspector during the inspection**



### 3.6 Inhouse Control

Prepare the following papers, which should be kept in the laboratory and be easy to access for Inspectors:

- Certificates and calibration documents for all test and measuring instruments especially the
- reference foils for the thickness gauge
- pH buffers-especially the expiry date
- calibration weights and
- conductivity standards (shall be  $>100\mu\text{S/cm}$ )
- Certificate of the stoving recorder calibration

#### For chrome free processes:

Results of following investigations which should be made every 2 months by chemical suppliers:

- AASS- Acetic Acid Salt Spray Test (corrosion resistance)
- Coating Weight ranges of conversion layer (Ti, Zr etc.)

#### For all chemical pre-treatments:

Short process description of chemical pre-treatment with:

- products and process parameters recommended by chemical supplier:
  - concentration,
  - temperature,
  - time,
  - conductivity,
  - pH value,
  - coating layer thickness or weight

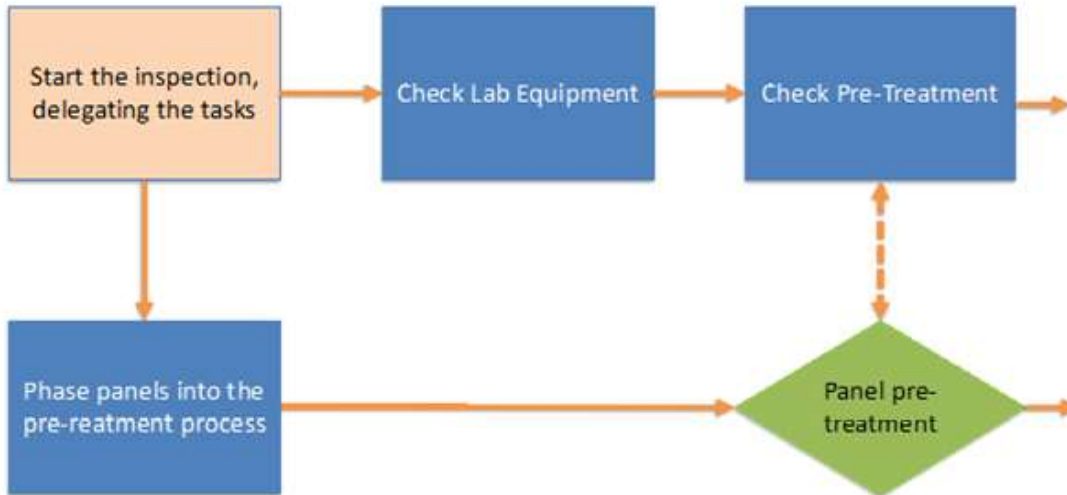
#### Further records:

- Laboratory diary with control processes and analyses
- Storage boxes and records from the in-house tested panels
  - Crosscut
  - Bend
  - Impact
- Records from the in house tested finished pieces
  - Thickness
  - Gloss
  - Crosscut

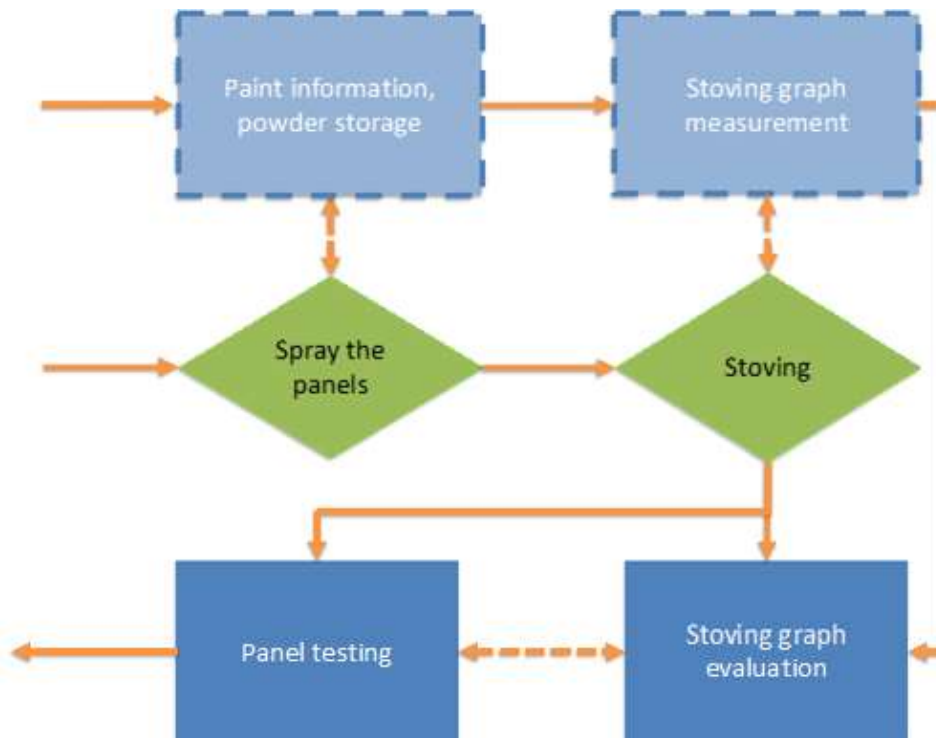
## 4 Flow Chart

In this section, the modules/blocks of the online inspections are visualised in a flow chart. The whole process can be found in the appendix 7.2.

### Block 1 & 2 Starting the Audit and Pre-Treatment



### Block 3 & 4 Painting, Stoving, Panel Testing



## Block 5 & 6 Finished Products and Inhouse Control



**Note: Samples for laboratory testing need to be taken and marked during the remote inspection. The inspector must verify that those samples are sent to the testing laboratory.**

## 5 Referencing Standards for the Accreditation Body

Regarding the ISO 17065 accreditation of QUALICOAT and the ISO 17025 accreditation of the testing lab, 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 coater 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

This guidelines cover all above requirements.

The German accreditation body DAKKS already gave a guideline to remote inspections which is called "Durchführung von Fernbegutachtungen: Leitfaden für Konformitätsbewertungen; 01/04/2020"

For DAKKS, there are some additional limitations to be noted: Granting visits **cannot** be done by remote inspection.

## 6 Summary and Conclusion

Quality audits by an independent inspection body are one of the pillars of a quality label as it differs beneficially from coating "only" according to an ISO standard. However, this benefit is interrupted due to the described restrictions. The purpose of the "remote-inspections" is **not** to replace the on-site inspections but to guarantee quality painting according to the specification in times with restricted travelling and/or access to companies. Within this roadmap to a remote QUALICOAT inspection, it can be assured, that the coaters still stick to the QUALICOAT rules as the surveillance from an independent inspection body is provided.



## 7 Appendix

### 7.1 Helpful Technical Equipment



### 7.2 Process map of a remote coating plan inspection

