

**AN ROINN TALMHAÍOCHTA, IASCAIGH AGUS BIA
DEPARTMENT OF AGRICULTURE, FISHERIES AND
FOOD**

**APPROVAL PROCEDURES AND PERFORMANCE
SPECIFICATION FOR PREPAINTED METAL PURLINS**

**Engineering Unit,
Environment and Engineering Services Division,
Department of Agriculture, Fisheries and Food,
Pavilion A,
Grattan Business Centre,
Dublin Road,
Portlaoise,
Co. Laois,
Ireland.**

January 2010.

1 GENERAL

1. This specification covers prepainted hot dip zinc coated steel purlins for use in the construction of farm buildings. The term "prepainted" refers to purlins which have been pre-treated and painted on factory production lines using recognised industrial processes, rather than those which have been painted on site prior to or following erection.
2. Manufacturers/suppliers of these purlins are required to provide proof, in the form of written reports from approved independent laboratories, that their products meet the requirements of this specification in order to qualify for Department of Agriculture, Fisheries and Food Approval.
3. One set of reports is required to complete the approval process. These are a series of weathering tests. In addition to the tests Form A shall be completed as described below, and supplied as specified.
4. Both the manufacturer of the coil and the roll former are required to carry ISO 9001 or approved equivalent registration in order to fully comply with the requirements of this specification. A declaration to this effect must be given in Form A, sections 1 and 2.
5. The Department of Agriculture, Fisheries and Food will only accept **original** test reports for approval purposes. Photocopies of original reports are not acceptable.
6. The weathering tests shall be performed on coil of each colour supplied by each coil manufacturer. Therefore if a coil manufacturer produces coil with 4 different colours, then four weathering test reports (one per colour) are required to cover that coil manufacturer's coils. The weathering test shall be conducted as described in section 3.
7. All reports and documentation shall be sent to: Engineering Unit, Environment and Engineering Services Division, Department of Agriculture, Fisheries and Food, Pavilion A, Grattan Business Centre, Dublin Road, Portlaoise, Co. Laois, Ireland.
8. The Approval shall remain in force for five years from its date of issue except in cases where the conditions described in 11 below apply. New test reports must be submitted to the Department for each material in sufficient time to ensure that re-approval is in force by the renewal date. All companies must maintain current certification to ISO 9001. Failure to do so will lead to removal of relevant company products until ISO 9001 certification is restored.
9. The Department of Agriculture, Fisheries and Food Approval issued following submission of the test reports applies only to the materials described in the independent reports and in FORM A attached to those reports. Any modification of the materials or processes used to manufacture the purlins, or any change of source of materials used to manufacture the purlins or failure to maintain ISO9001 certification following approval, automatically invalidates the approval until the required updated test(s) have been supplied.

1.1 Summary of what is required:

1.1.1 In cases where a purlin former is purchasing coils of grant approved material directly from steel mills:

1. Form A Section 1, once per coil manufacturer.
2. Form A Section 2, once per purlin former.
3. Form A Section 3, once for every colour supplied by each coil manufacturer.
4. Form A Section 4, once for each coil & colour tested for purlin former.
5. Weathering test reports, one for every colour supplied by each coil manufacturer.
6. Details of company stamp applied to each purlin (different stamp required for coils from each different source).

1.1.2 In cases where a purlin former is purchasing coils of grant approved material other than directly from steel mills, the following information is required from that purlin former:

1. Completion of Section 2 of Form A.
2. Completion of Section 4 of Form A.
3. Statement as to source of coils.
4. Letter from coil supplying company that they are supplying coil to purlin former (letter to be sent directly from supplying company to Department of Agriculture, Fisheries and Food).
5. Details of company stamp applied to each purlin (different stamp required for coils from each different source).

2 PURLIN REQUIREMENTS

- 1) The zinc coating weight shall be, at least, 275 g/m² including both sides to meet the requirements of BS 2989, and the sheet shall be painted on both sides. Both sides shall meet the requirements of this specification.
- 2) The paint coating thickness must be within the range shown to have met the requirements of this specification, and must conform to the declaration made in **Form A**.
- 3) **STAMPS:** The internal surfaces or undersides of sheets shall be marked with an identifiable indelible stamp, to be agreed with the Department of Agriculture, Fisheries and Food, and shall contain the following information:
 - 4.1) Brand name of Product, in letters at least 15 mm high.
 - 4.2) Name, or identification title, of roll forming company.
 - 4.3) Thickness of sheet in mm.
 - 4.4) Identification of coil manufacturer (e.g. B.S. for British Steel)

3 Weathering tests required on metal purlin materials

3.1 General Requirements

All purlin materials shall be tested by:

**CREST,
Dublin Institute of Technology,
Kevin Street,
Dublin 2.**

Contact name: Paul Quinn.

Procedure

The purlin former shall submit specimens of the proposed coil, to CREST for weathering tests to be undertaken on the material. Specimens submitted to the independent test laboratory should be in the form of 40 150mm x 100mm panels or as otherwise agreed, and must be accompanied by a completed original of Form A for each colour and material type intended for Department approval.

CREST will undertake the weathering tests set out in section 3.2 below, on the submitted specimens, and the purlin former shall send original copies of the completed test reports to the Department of Agriculture, Fisheries and Food for each colour tested.

The purlin former shall take the samples from a random coil and forward the samples to CREST along with a copy of the specification sheet for the coil. A copy of the specification sheet submitted by the purlin former shall be included with the test report.

The purlin former shall send an original of the test reports and full stamp details for the purlin to: Engineering Unit, Environment and Engineering Services Division, Department of Agriculture, Fisheries and Food, Pavilion A, Grattan Business Centre, Dublin Road, Portlaoise, Co. Laois.

(Section 4 of Form A should be completed by the applicant following receipt of the independent test report and prior to submitting the report to the Department.)

3.2 TEST SCHEDULE

3.2.1 METALLIC COATING WEIGHT.

The mass of the metallic coating shall be determined using the strip and weigh procedure specified in Appendix A of I.S. 145: 1985, following removal of the paint coating/s.

Commercially available paint strippers, which are known not to attack the metallic coating, shall be used to remove the paint coatings. The mass of metallic coating shall conform to the requirements shown in 3.2.

3.2.2 PAINT COATING THICKNESS.

The paint coating thickness shall be determined according to ISO 2808, Method N^o4, A or B.

The thickness of each layer of paint shall fall within the range given in **Form A**.

3.2.3 SPECULAR GLOSS.

The test method shall be as specified in ISO 2813 using a 60^o head.

The gloss level shall not deviate from the value given in Form A by more than $\pm 10\%$.

3.2.4 ADHESION.

Adhesion testing shall be carried out in accordance with ISO 2409.

A classification of I or better is required for approval

3.2.5 FILM ADHESION & CRACKING AFTER BENDING.

After bending in accordance with ECCA Test Method T7, there shall be no loss of adhesion or cracking after a 1 T bend when assessed using tape with an adhesion force to steel of 40 ± 10 N/mm.

3.2.6 RESISTANCE TO SALT SPRAY

This test shall be carried out in accordance with ISO 9227 for 500 hours. Prior to testing, the specimens shall be scribed with two diagonal lines across the length of the panels. On completion of the test the coatings shall meet the following requirements when assessed according to ASTM 1654.

| | |
|------------------|---|
| Blistering: | None on the unscribed surfaces. |
| Discolouration | None. |
| Loss of adhesion | Where isolated spots showing loss of adhesion develop along the scribed lines, no individual spot shall be greater than 3mm from the scribed lines. Where loss of adhesion is general along the scribed lines, it shall not be greater than 2 mm from the lines. |

Panels will also be subjected to conical mandrel testing according to the requirements of ISO 6860. This produces a graduated bend on the panel of approximately 32mrn diameter at the wide end and 5mrn at the narrow end. These panels shall be placed in the Salt Spray cabinet, with the narrow end facing downwards for 500 hours.

Following completion of this test no deterioration of the coating will be apparent along the bend more than 10mrn from the edge of the panel at the narrow end of the bend.

3.2.7 RESISTANCE TO HUMIDITY.

This test shall be carried out in accordance with ASTM 2247 for 1,000 hours. On completion of the test, the paint coating shall meet the following requirements in areas more than 1 mm from cut edges:

| | |
|------------------|-------------|
| Blistering. | None |
| Loss of adhesion | None |
| Loss of gloss | None |
| Discolouration | None |

3.2.8 RESISTANCE TO WATER IMMERSION.

When immersed in distilled water for 1,000 hours according to ISO 1521 the paint finishes shall meet the following requirements in areas more than 1 mm from cut edges.

| | |
|------------------|-------------|
| Blistering. | None |
| Loss of adhesion | None |
| Loss of gloss | None |
| Discolouration | None |

3.2.9 ACCELERATED WEATHERING.

When tested according to ASTM G 53: 1995 for 1,000 hours, the paint coating shall meet the following requirements:

| | |
|---------------------------------|---|
| Cracking or detachment | None |
| Blistering. | None |
| Loss of gloss or discolouration | review in context of other results if more than slight |
| Chalking | review in context of other results if more than slight |

3.2.10 RESISTANCE To SO₂

This test shall be carried out in accordance with ISO 3231: 1993 using 0.21litres of SO₂ in a 300 ±10 litre chamber at 40 ±5°C for 8 hours followed by 16 hours exposure at ambient conditions to complete a cycle.

| | |
|--------------|---|
| Requirement: | Following 30 cycles of this test, the coating on both sides which may be exposed to the animal housing environment shall show no sign of breakdown, and there shall be no evidence of substrate corrosion product on the surface. |
|--------------|---|

A FORM A

NOTE:

Two completed originals of **FORM A, Pages A-2, A-3 and A-4** must accompany each set of specimens sent to an approved laboratory for compliance testing to the requirements of this specification. The laboratory is to be instructed to prepare two original reports for each material tested, and to include the completed **FORMS A** in each report.

Page A-5 of FORM A is to be completed by the applicant and accompany each test report submitted to The Department of Agriculture, Fisheries and Food for approval purposes.

The Department of Agriculture, Fisheries and Food will accept originals only of laboratory reports as evidence of compliance with the requirements of this specification for approval purposes, and the reports must contain the fully completed **Form A** for each material or colour for which approval is being sought.

SECTION 1. COIL MANUFACTURER'S DETAILS

Company Name

Address

.....

.....

Telephone N°

Fax N°

Does the Company operate a Quality Management System which is registered to ISO 9000, or an equivalent (Mark "X" as appropriate) Yes No

If "yes", provide the following information:

The name of the registration Authority.....

The Registration No.....

The date of Registration /...../.....

Signed..... **Position**.....

Date:/...../.....

SECTION 2.

PURLIN FORMERS DETAILS

Company Name

Address

.....

.....

Telephone N°

Fax N°

Does the Company operate a Quality Management System which is registered to ISO 9000, or an approved equivalent (Mark "X" as appropriate) Yes No

If "yes", provide the following information:

The name of the registration Authority.....

The Registration No.....

The date of Registration/...../.....

Signed.....

Position.....

Date:/...../.....

SECTION 4

APPLICANT'S DECLARATION

This section to be completed by the applicant prior to submission of the Test Report and this Form to the Department of Agriculture, Fisheries and Food for approval.

This declaration covers materials described in Report reference No.....
(Insert the Reference No of the attached report)

issued by....., dated...../...../.....
(insert the name of the test house) (insert the report issue date)

They are representative of the materials which will be supplied by this company for the purposes of constructing farm buildings. The Department of Agriculture, Fisheries and Food Approval Scheme.

Name of applicant Company.....

Address.....
.....
.....

Signature:
(On behalf of applicant company)

Position.....

Date/...../.....

Company Stamp: