Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Certificate of Approval
NMI 15/1/1

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that an approval for use for trade has been granted in respect of the instruments herein described.

Infratec Model 1241 Grain Protein Measuring Instrument

submitted by Foss Pacific Pty Ltd
Unit 2, 112-118 Talavera Road
North Ryde NSW 2113

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI M8, *Pattern Approval Specifications for Protein Measuring Instruments for Grain*, dated July 2004.

This approval becomes subject to review on **1/12/20**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – interim certificate issued	5/11/03
1	Pattern approved – certificate issued	6/02/04
2	Pattern amended – notification of change issued	4/08/04
4	Variant 1 approved – certificate issued	27/10/04
5	Pattern amended – notification of change issued	15/03/07
6	Variant 2 approved – certificate issued	18/03/08

Document History (cont…)

Rev	Reason/Details	Date
7	Pattern & variants 1 & 2 reviewed – notification of change issued	17/07/09
8	Variant 3 approved – certificate issued	20/12/10
9	Variant 4 approved – interim certificate issued	18/09/14
10	Variant 4 amended – interim certificate issued	29/10/14
11	Variant 4 amended (validity date) – interim certificate issued	28/04/15
12	Pattern & variants 1 to 3 updated & reviewed – variant 4 approved – certificate issued	6/05/16

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) 15/1/1' and only by persons authorised by the submittor.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates Nos S1/0/A or S1/0B.

Signed by a person authorised by the Chief Metrologist to exercise their powers under Regulation 60 of the *National Measurement Regulations 1999*.

Dr A Rawlinson

TECHNICAL SCHEDULE No 15/1/1

1. Description of Pattern **approved on 5/11/03**

The pattern is an Infratec model 1241 measuring instrument (Figure 1) used to determine the protein content of a sample of barley or wheat grain.

1.1 Approved Operating Range

Instruments are approved for use:

- an operating range of 7 to 22% protein for wheat (scale interval of 0.1%)
- an operating range of 6 to 22% protein for barley (scale interval of 0.1%)
- an operating temperature range of 5^{o}C to 40^{o}C

1.2 Design

The Infratec model 1241 instrument automatically determines the protein content of a sample of grain, and displays the value in increments of 0.1%, by passing a monochromatic light beam through the sample and to a detector; the detected signal is amplified and processed by the internal computer.

Results are displayed on the liquid crystal display and may also be printed or downloaded via an RS232 output to an external personal computer.

1.3 Optional Equipment

The pattern may be fitted with any of the following optional facilities:

- The Sample Transport Module for small samples of grain;
- The Flour Module for fine milled flour; and
- The Colour Module which extends the range of the monochromatic light beam.

1.4 Descriptive Markings

Instruments of the pattern and variants 1 to 3 are marked with the following data, together in one location, in the form shown at right:

Manufacturer's mark, or name written in full	Foss Analytical AB, Sweden
Pattern approval number for the instrument	NMI (or NSC) 15/1/1
Approved operating range	…….. % protein
Model designation	……..
Grain type	……..
Serial number of the instrument	……..

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

Provision is made for sealing the calibration adjustments in the instrument by means of an electronic sealing feature which is password protected. An event counter records every time the electronic seal is opened. By noting the value of the event counter at the time of verification it is possible to verify if the seal has been opened since the previous verification.

2. Description of Variant 1 approved on 27/10/04

An Infratec model 1231 measuring instrument which is similar to the pattern but without the RS232 communication output and with fewer optional facilities.

3. Description of Variant 2 approved on 18/03/08

An Infratec model 1241 measuring instrument which is similar to the pattern but has a different central processing unit (CPU) and a different display (Figure 2).

In addition, the instrument does not have the floppy disc drive of the pattern and is now fitted with additional interface ports including one or two USB ports, a LAN port and a CRT monitor port.

4. Description of Variant 3 provisionally approved 5/11/09
approved on 17/12/10

An Infratec model 1241 measuring instrument as described for variant 2 now in an alternative housing including with a different display/keyboard layout (Figure 3).

5. Description of Variant 4 approved on 18/09/14

An Infratec model 1241 (Figure 4) may be fitted with an integral Test Weight Module which may only be used to determine the bulk density of a sample of barley or wheat grain by weighing a sample packed in the test cell.

5.1 Approved Operating Range

Instruments are approved for use with the following:

- an operating range of 7 to 22% protein for wheat (scale interval of 0.1%)
- an operating range of 6 to 22% protein for barley (scale interval of 0.1%)
- an operating density range of 50 to 90 kg/hL (scale interval 0.1 kg/hL)
- a weight range of 0.25 to 0.45 kg (scale interval 1 g)
- an operating temperature range of 5^{o}C to 40^{o}C
- a power supply of 220-240 VAC, 50 Hz

5.2 Alternative unit

Instruments may display the weight value of grain sample captured in the test cell and with a scale interval of 1 g. The value shall be used for density measurement calculations only. This approval does not include the use of the instrument as a weighing instrument.

5.3 Verification

The instrument can be verified for trade use to measure both protein and density or alternatively to only measure protein or only density. Instruments which are verified to only measure one aspect shall be marked with a notice near the display, stating which measurement is NOT approved for trade use, e.g. 'The protein measurement is not approved for trade use' or similar.

5.4 Descriptive Markings

Instruments of variant 4 are marked with the following data, together in one location, in the form shown at right:

The instrument shall only be marked with one verification mark.

Manufacturer's mark, or name written in full	Foss
Pattern approval number for the instrument	NMI No 15/1/1
Model designation	.....
Serial number of the instrument	.....
Protein operating range	..... to .....% protein
Protein scale interval	..... %
Density operating range	..... kg/hL
Density scale interval	..... kg/hL
Weight operating range	..... kg
Weight scale interval	..... g
Grain type	.....
Special temperature limits	5°C to 40°C
Power supply	220-240 VAC, 50 Hz

TEST PROCEDURE

Protein Measurement

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the National Trade Measurement Regulations 2009.

Density Measurement

Verification of the instrument shall be carried out by comparison with a reference chondrometer (instruments designated as either Franklin, Kern or Schopper are acceptable).

The procedure shall be carried out using samples of barley and wheat grain that are free from impurities and under the same ambient conditions of temperature and humidity where measurements are normally made.

Take one test sample large enough to fill the filling hopper of the reference chondrometer and the test cell of the Test Weight Module.

Carry out five measurements on the reference chondrometer in accordance with any relevant tests specified in the General Certificate of Approval No 4/10/0A; carry out five measurements on the instrument using the same test sample of grain (#). For each measurement, determine the density of the sample of grain. The mean value of the density should then be determined for both the instrument and the reference chondrometer.

The discrepancy of the two mean values shall be within ±0.5 kg/hL.

(#) The difference between the highest and lowest value of the density shall not exceed 0.5 kg/hL.

Ensure that instruments are only being used within the special environment limits stated elsewhere in this Technical Schedule.

FIGURE 15/1/1 – 1

Infratec Model 1241 Grain Protein Measuring Instrument (Pattern)

FIGURE 15/1/1 – 2

Infratec Model 1241 Grain Protein Measuring Instrument (Variant 2)

FIGURE 15/1/1 – 3

Infratec Model 1241 Grain Protein Measuring Instrument (Variant 3)

FIGURE 15/1/1 – 4

Infratec Model 1241 Grain Protein Measuring Instrument (Variant 4)

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