

Decision Rule

To fully meet the requirements of ISO 17025 2017, Metals Technology (Testing) Limited has implemented a Decision Rule system to provide uncertainties for all test results.

The categories within the system are as follows:

DR (A)

Selection of DR (A) at contract review deems the uncertainties when testing to a National and International Standard need not be expressed as a figure. These particular standards have the uncertainties dealt with inherently.

DR (B)

Selection of DR (B) at contract review deems that the National and International Standard does account for uncertainties. For each test that requires a Decision the uncertainties will be stated with a "False Accept" or "False Reject".

DR (C)

Selection of DR (C) at contract review deems that the test is to be carried out to an "In House Procedure". For each test that requires a Decision the uncertainties will be stated with a "False Accept" or a "False Reject".

DR (D)

Selection of DR (D) at contract review deems that the test to be carried out is a qualitative test. Uncertainties related to the conditions associated with the test define the Decision Rule.

As an accredited laboratory, uncertainties have been calculated for variable measurements. These uncertainty values will be included on the report when determining compliance/non-compliance to a specification limit for Decision Rules B and C.

Application of Decision Rules

The following tables detail the test standards for which MTT is currently accredited by UKAS.

These tables also state the Decision Rule that will be applied by MTT unless otherwise instructed by the customer.

Chemical analysis is not included in these tables as it is conducted in accordance with Documented In-House Methods and not known National/International Standards. Decision Rule C (uncertainty further taken into account) applies to all chemical analysis tests.

Table 1 (Metallurgical Tests)

Test Type	Test Standard	Decision Rule to be employed	Reason for use of Decision Rule A
Macro Etch	ASTM E381	A	Visual assessment/comparison only – no measurement taken
	ASTM A604/A604M	A	Visual assessment/comparison only – no measurement taken
	API6ACRA	A	Visual assessment/comparison only – no measurement taken
Volume Fraction	ASTM E562	B	-
Detecting Intermetallic phases	ASTM A923 Method A	A	Visual assessment/comparison only – no measurement taken
Grainsize	ASTM E112 Comparison Method	A	Visual assessment/comparison only – no measurement taken
	ASTM A112 Linear Intercept Method	B	-
	BSENISO 643 Comparison Method	A	Visual assessment/comparison only – no measurement taken
	ASTM E930	A	Visual assessment/comparison only – no measurement taken
	ASTM E1181	A	Visual assessment/comparison only – no measurement taken
Inclusion Content	ASTM E45	A	Comparison to ASTM E45 charts
Sulphur Prints	ASTM E1180	A	Visual assessment/comparison only – no measurement taken
Decarburisation Depth	ASTM E1077	B	-

Table 2 (Corrosion Tests)

Test Type	Test Standard	Decision Rule to be employed	Reason for use of Decision Rule A
Pitting or Crevice Corrosion	ASTM G48 (Practice A & B)	B	-
	ASTM A923 Method C	B	-
Intergranular Corrosion	ASTM G28 Method A	B	-
	ASTM A262 Practice B & C	B	-
	BSENISO 3651-1	B	-
	BSENISO 9400 (Methods A, C & D)	B	-
	BENISO 9400 (Method B)	A	Visual assessment/comparison only – no measurement taken
	BSENISO 3651-2 (Methods A, B & C)	A	Visual assessment/comparison only – no measurement taken
	ASTM A262 (Practice A & E)	A	Visual assessment/comparison only – no measurement taken

Table 3 (Mechanical Tests)

Test Type	Test Standard	Decision Rule to be employed	Reason for use of Decision Rule A
Room Temperature Tensile	BSENISO 6892-1	A	Uncertainty inherent in standard (Clause 23.1)
	ASTM A370	A	Technically equivalent to BSENISO 6892-1
	ASTM E8/E8M	A	Technically equivalent to BSENISO 6892-1
	BSENISO 4136	A	Technically equivalent to BSENISO 6892-1
	BSENISO 5178	A	Technically equivalent to BSENISO 6892-1
Elevated Temperature Tensile	BSENISO 6892-2	A	Uncertainty inherent in 6892-1 standard (Clause 23.1)
	ASTM E21	A	Technically equivalent to BSENISO 6892-2
Impact Testing	BSENISO 148-1	A	Uncertainty inherent in standard (Annex E.2.2)
	BS131	A	Technically equivalent to BSENISO 148-1
	ASTM E23	A	Technically equivalent to BSENISO 148-1
	ASTM A370	A	Technically equivalent to BSENISO 148-1
	BSENISO 9016	A	Technically equivalent to BSENISO 148-1
Hardness Testing – Brinell	BSENISO 6506-1	A	Uncertainty inherent in standard (Annex C.1)
	ASTM E10	A	Technically equivalent to BSENISO 6506-1
	ASTM A370	A	Technically equivalent to BSENISO 6506-1
Hardness Testing – Rockwell	BSENISO 6508-1	A	Uncertainty inherent in standard (Annex G.1)
	ASTM E18	A	Technically equivalent to BSENISO 6508-1
	ASTM A370	A	Technically equivalent to BSENISO 6508-1
Hardness Testing – Vickers	BSENISO 6507-1	A	Uncertainty inherent in standard (Annex D.1)
	BSENISO 9015-1	A	Technically equivalent to BSENISO 6507-1
Bend	BSENISO 7438	A	Visual assessment/comparison only – no measurement taken
	BSENISO 5173	A	Visual assessment/comparison only – no measurement taken