



PM/9908/2
Nov 2020

**PRODUCT MANUAL
FORMIC ACID
ACCORDING TO IS 9908:2020**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	Product	:	IS 9908:2020
	Title	:	Specification for Formic Acid
	No. of Amendments	:	0
2.	Sampling Guidelines:		
a)	Raw material	:	No specific requirement
b)	Grouping guidelines	:	None.
c)	Sample Size	:	1000 ml approx.. in air tight Glass stoppered bottle
3.	List of Test Equipment	:	Please refer Annex–A
4.	Scheme of Inspection and Testing	:	Please refer Annex–B
5.	Possible tests in a day :		All tests
6.	Scope of the Licence :		
	"Licence is granted to use		Standard Mark as per IS 9908:2020 with the following scope:
	Name of the product		FORMIC ACID
	Grade		Grade 1/Grade 2

Annex-A

LIST OF TEST EQUIPMENTS

Major test equipment required to test as per the Indian Standard

Sr. NO	Characteristic	Test Equipment	Tests used in with clause Reference
1.	Total acidity (as HCOOH)	Analytical Balance Range 0.1mg to 220 gm, Flat-bottom weighing bottle with lid, Conical flask 250 ml, Glass ampule, Standard NaOH 1 N, phenolphthalein indicator	(CI 3.2 and table 1) Appendix A-3 Of IS 9908- 1981
2	Water insoluble matter	Visual observation only, Glass Beaker 250 ml, Pipette 25 ml	(CI 3.2 and table 1) Appendix A - 4 Of IS 9908- 1981
3	Non – Volatile matter	Analytical Balance Range 0.1mg to 220 gm, Silica dish 100 ml, Thermometer 110 °C, Desiccator, silica /porcelain basin, water bath, drying oven	(CI 3.2 and table 1) Appendix A - 5 Of IS 9908- 1981
4	Acids other than Formic acid	Analytical Balance Range 0.1mg to 220 gm, pH meter with Glass electrode, Magnetic stirrer, Conical flask 250ml, Reflux condenser with glass joint to fit the flask, One mark Volumetric flask 1000 ml, Glass bead, Glass beaker 250 ml, Acetic acid, mercuric oxide, Standard NaOH	(CI 3.2 and table 1) Appendix A - 6 Of IS 9908- 1981
5	Chloride(as Cl)	Analytical Balance Range 0.1mg to 220 gm, One mark Volumetric flask 1000 ml, Nessler cylinder 50 ml cap, pipette 10 ml, Nitric Acid 5N, Silver nitrate solution 10 %, NaCl solution	(CI 3.2 and table 1) Appendix A - 7 Of IS 9908- 1981
6	Nitrogen compounds (as N)	Analytical Balance Range 0.1mg to 220 gm, MicroKjeldahl distillation apparatus, Hessian Crucible or any other suitable crucible, Hot plate, Gas burner, One mark Volumetric flask 1000 ml, Nessler cylinder 50ml, Conical flask 250ml, Glass rod for stirring, Devarda's Alloy, Nessler solution, Standard Nitrogen solution.	(CI 3.2 and table 1) Appendix A - 8 Of IS 9908- 1981
7	Sulphates(as SO ₄)	Analytical Balance Range 0.1mg to 220 gm, Water bath, One mark Volumetric flask, 100ml, 1000 ml, Nessler cylinder 50 ml, Thermometer 110 °C, Dish porcelain or silica 100 ml, denatured spirit, HCl 5N, Barium chloride solution, Sodium sulphate	(CI 3.2 and table 1) Appendix A - 9 Of IS 9908- 1981
8	Iron (as Fe)	Method A: Analytical Balance Range 0.1mg to 220 gm, Dish porcelain or silica, One mark Volumetric flask, 25 ml, 1000 ml, Nessler Cylinder 100ml, Pipette 5 ml 0.1ml graduation, Glass rod, Thioglycolic acid, citric acid, ammonium hydroxide solution, Standard Iron Solution Method B: Analytical Balance Range 0.1mg to 220 gm, Dish porcelain or silica, One mark Volumetric flask, 1000 ml, 500 ml, 50 ml, UV-vis Spectrophotometer, Glass Cell of 50 mm path length – 2 nos, Standard 10 ml micro burette, Hydrochloric Acid, hydroquinone solution 1%, sodium citrate, phneanthrolinein, ferrous sulphate, DM water	(CI 3.2 and table 1) Appendix A -10 Of IS 9908-1981
9	Heavy metal (as Pb)	Analytical Balance Range 0.1mg to 220 gm, Steam bath, Pipette 2.0ml & 10 ml, One mark Volumetric flask, 100ml, Nessler Cylinder 100ml, Dish porcelain, Glass bottle soluble Lead salt free, Hydrogen Sulphide, Lead Nitrate, Nitric acid	(CI 3.2 and table 1) Appendix A -11 Of IS 9908-1981

Notes:

1. Least count/range/specification of apparatus, reagents etc. shall be as per the IS
2. The above list is for guidance only and may not be treated as exhaustive

ANNEX – B

SCHEME OF INSPECTION AND TESTING

1. **LABORATORY** - A laboratory shall be maintained which shall be suitably equipped(as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.
- 1.1 The manufacturer shall prepare a calibration plan for the test equipment's.
2. **TEST RECORDS** –The manufacturer shall maintain test records for the tests carried out to establish conformity.
3. **PACKING AND MARKING**–The Standard Mark, as given in the Schedule of the licence, shall be marked on the packages/containers of or printed on the label applied to it, provided always that the product so marked conform to requirements of the specification.
3.1 Packing and marking shall be done as per the requirements of the standard. In addition, the following details shall be mentioned on each container/package:-
 - a) BIS Licence No. CM/L ----- --.
 - b) BIS website details i.e. —"For details of BIS certification please visit www.bis.gov.in".
4. **CONTROL UNIT** – For the purpose of this scheme the total quantity of the material of the same grade manufactured in a day mixed with stored material in dispatch tank shall constitute a control unit.
5. **LEVELS OF CONTROL** –The tests as indicated in column 1 of table 1 when tested according to the methods prescribed in Appendix – A refer to the clause of Appendix A Given in table 1. This shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.
 - 5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.
 - 5.2 In respect of all other clauses of the specification the factory will maintain appropriate controls and checks to ensure that their product conforms to the various requirements of the specification.
6. **REJECTIONS** – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE 1:
LEVELS OF CONTROL**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Clause	Requirements	Test Method			No. of Samples	Frequency	Remarks
		Clause	Reference				
3.1	Description	Visual	IS 9908:2020	R		Each control unit	
3.2 & Table 1	Total acidity as (HCOOH)	A-3	-do-	R	One	Each control unit	If sample fails, control unit shall not be marked
	Water insoluble matter	A - 4	-do-	R	One	Each control unit	
	** Non – Volatile matter	A - 5	-do-	R	One	Every seventh control unit	
	** Acids other Than Formic acid	A - 6	-do-	R	One	-do-	
	** Chloride (as Cl)	A - 7	-do-	R	One	-do-	
	** Nitrogen compounds (as N)	A - 8	-do-	R	One	-do-	
	** Sulphate (as SO ₄)	A - 9	-do-	R	One	-do-	
	** Iron (as Fe)	A - 10	-do-	R	One	-do-	
** Heavy metals (as Pb)	A - 11	-do-	R	One	-do-		



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Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for the approval by BO Head.

Note-3: **If sample fails in parameters mentioned as ** control unit shall not be marked and frequency shall be increased to every control until samples from 5 consecutive control unit passes.**