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# उत्पाद मैन्युअल
# फॉर्मिक एसिड की— विशिष्टि
## IS 9908 : 2020 के अनुसार

# PRODUCT MANUAL
## Specification for Formic Acid
## ACCORDINGTO IS 9908 : 2020

**विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।**

***This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity 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.***

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|---|---|---|---|
| 1. | **मानक संख्या**<br>**IS No.** | : | IS 9908 : 2020 |
| | **शीर्षक**<br>**Title** | : | Specification for formic Acid |
| | **संशोधनों की संख्या**<br>**No. of amendments** | : | 3 |
| 2. | **नमूना दिशानिर्देश**<br>**Sampling Guidelines** | | |
| a) | **कच्चा माल**<br>**Raw material** | : | No specific requirement |
| b) | **समूहीकरण दिशानिर्देश**<br>**Grouping Guidelines** | : | Pl. refer Annex-A |
| c) | **नमूने का परिमाण**<br>**Sample Quantity** | : | 1000 ml in air tight Glass stoppered bottle |
| d) | **परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर**<br>**Parameters to be Declared in Test Request** | | Name of the Product:<br>Grade:<br><br>Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable. |
| 3. | **परीक्षण उपकरणों की सूची**<br>**List of Test Equipment** | : | Please refer to Annex-B |

| | | | |
|---|---|---|---|
| 4. | **निरीक्षण और परीक्षण की स्कीम**<br>**Scheme of Inspection and Testing** | : | Please refer to Annex-C |
| 5. | **एक दिन में संभावित परीक्षण**<br>**Possible tests in a day** | | |
| | All the tests mentioned in the IS are possible to be carried out in a day. | | |
| 6. | **लाइसेंस का दायरा /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 |
| | Type | | Grade 1 and/or Grade 2 |

**BUREAU OF INDIAN STANDARDS**
**MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,**
**NEW DELHI-110002**

## ANNEX A

## GROUPING GUIDELINES

1. Formic Acid has been classified into following 2 Grades (clause 3):

| | |
|---|---|
| (i) | Grade 1 – Generally used for the manufacture of camphor |
| (ii) | Grade 2 – For Industrial purpose |

2. The manufacturer shall declare the Grade of the product they intend to cover in the scope of licence.

3. The sample of each grade of Formic acid to be drawn and shall be subjected to testing, for considering grant of licence/inclusion of that type.

4. It shall be ensured that the firm is having all the necessary manufacturing and testing facilities for the manufacture and testing of the grades to be included in the licence.

5. During the operation of licence, BO shall ensure that all the types of Formic acid, covered in the license are drawn for independent testing on rotation over a period of time.

## ANNEX- A

## LIST OF TEST EQUIPMENT

***(INDICATIVE LIST, FOR GUIDANCE ONLY)***

| Sl.No. | Tests used in with Clause Reference | Test Equipment/Chemicals |
|---|---|---|
| 1. | Total acidity (as HCOOH), Cl. 4.2 and Table 1 | 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, Burette/Auto titrator |
| 2. | Non – Volatile matter<br>Cl. 4.2, Table 1 | Analytical Balance Range 0.1mg to 220 gm, Silica dish 100 ml, Thermometer 110 $^{O}$C, Desiccator, silica/porcelain basin, water bath, drying oven |
| 3. | Chlorides (as Cl),<br>Cl. 4.2, Table 1 | Analytical Balance Range 0.1mg to 220 gm, Onemark Volumetric flask 1000 ml, Nessler cylinder 50ml cap, pipette 10 ml, Nitric Acid 5N, Silver nitrate solution 10 %, Nacl solution<br><br>OR<br>Ion Chromatography system<br>Eluent reservoir<br>Metal- free HPLC pump<br>Sample injection system<br>Separator column<br>Conductivity detector (CD)<br>Ultraviolet (UV) detector<br>Recording device<br>Precolumn<br>Chloride standard solution |
| 4. | Sulphates as ($SO_4$),<br>Cl. 4.2, Table 1 | Analytical Balance Range 0.1mg to 220 gm, Water bath, One mark Volumetric flask, 100ml, 1000 ml, Nessler cylinder 50 ml, Thermometer 110 $^{O}$C, Dish porcelain or silica 100 ml, denatured spirit, HCl 5N, Barium chloride solution, Sodium sulphate<br><br>OR<br>Ion Chromatography system<br>Eluent reservoir<br>Metal- free HPLC pump<br>Sample injection system<br>Separator column<br>Conductivity detector (CD)<br>Ultraviolet (UV) detector<br>Recording device<br>Precolumn<br>Sulphate standard solution |
| 5. | Iron (as Fe),<br>Cl. 4.2, Table 1 | **As per Annex A-10 -**<br>**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<br><br>**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<br>Acid, hydroquinone solution 1%, sodium citrate, phnenanthrolinein, ferrous sulphate, DM water<br><br>**Or As per IS 1448 (Part 172) –**<br>Ultrapure Water, Hydrochloric Acid - Concentrated, 36 percent (m/m), Nitric Acid - Concentrated, 65 percent (m/m), Acid Mixture - Made from 3 parts hydrochloric acid and 1 part nitric acid, Dilute Nitric Acid - 1 : 10 mixture of nitric acid and water, Internal Standard, Multi Element/Organometallic Standards (CRM), Dilution Solvent, Tartaric Acid/Hydrochloric Acid Solution, Toluene, Toluene/Propan-2-ol Mixture, Di-Lithium Tetra Borate, High Purity Argon<br>Gas, High Purity Nitrogen Gas, High Purity Air, Analytical Balance - Minimum capacity 200 g capable of weighing to the nearest 0.1 mg, Inductively- Coupled Plasma Atomic Emission Spectrometer, Nebulizer, Peristaltic Pump, Platinum or Silica Crucible/Dish, Hot Plate, Electric Muffle Furnace, General Laboratory Glasswares |
| 6. | Heavy metals (as Pb)<br>Cl. 4.2, Table 1 | **As per Annex A-11 –**<br>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<br><br>**Or As per IS 1448 (Part 172 ) –**<br>Ultrapure Water, Hydrochloric Acid - Concentrated, 36 percent (m/m), Nitric Acid - Concentrated, 65 percent (m/m), Acid Mixture - Made from 3 parts hydrochloric acid and 1 part nitric acid, Dilute Nitric Acid - 1 : 10 mixture of nitric acid and water, Internal Standard, Multi Element/Organometallic Standards (CRM), Dilution Solvent, Tartaric Acid/Hydrochloric Acid Solution, Toluene, Toluene/Propan-2-ol Mixture, Di-Lithium Tetra Borate, High Purity Argon Gas, High Purity Nitrogen Gas, High Purity Air, Analytical Balance - Minimum capacity 200 g capable of weighing to the nearest 0.1 mg, Inductively-Coupled Plasma Atomic Emission Spectrometer, Nebulizer, Peristaltic Pump, Platinum or Silica Crucible/Dish, Hot Plate, Electric Muffle Furnace, General Laboratory Glasswares |

## ANNEX B

## SCHEME OF INSPECTION AND TESTING

### 1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 **RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT**:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: 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.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. **ENSURING COMPLIANCE THROUGH TESTING-** It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

**2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) is also optional.**

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 **Large Scale manufacturers shall maintain an in-house laboratory equipped at least withtest facilities for routine tests (indicated as "R" in Column 2 of Table 1)**, where different testsgiven in the specification shall be carried out in accordance with the method given in the specification**.** They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 **TEST RECORDS**- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratoryor any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. **PACKING AND MARKING** - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on the packages/containers of Formic Acid provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 **Additional Marking requirements**: The material shall also be marked with the following additional requirement on each consumer pack of on the packages/containers of Formic Acid:

a) "For BIS certification details please visit www.bis.gov.in"

4. **REJECTION -** All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. 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**
***(ONLY FOR GUIDANCE PURPOSE)***

| (1) | | | | (2) | (3) | | |
|---|---|---|---|---|---|---|---|
| **Test Details** | | | | **Test equipment requirement R: required (or) S: Sub-contracting permitted** | **Levels of Control** | | |
| **Cl.** | **Requirement** | **Test Method** | | | **No. of Sample** | **Frequency** | **Remarks** |
| | | **Clause** | **Reference** | | | | |
| 4.1 | Description | 4.1 | IS 9908 | R | One | Each control unit | |
| 4.2 & Table 1. | Total acidity (as HCOOH) | A-3 | IS 9908 | R | One | Each control unit | |
| | Non – Volatile matter | A-5 | -do- | R | One | Every seventh control unit<br>Each control unit | |
| | Chlorides (as Cl), | A-7/ IS 3025 (Part 75) | -do- | R | One | do- | In case of dispute, A-7 shall be referee method |
| | Sulphates as ($SO_4$) | A-9/ IS 3025 (Part 75) | -do- | R | One | do- | In case of dispute, A-9 shall be referee method |
| | Iron (as Fe), | A-10 / IS 1448 (Part 172) | -do- | R | One | do- | In case of dispute, IS 1448 (Part 172) shallbe referee method |
| | Heavy metals(as Pb) | A-11 / IS 1448 (Part 172) | -do- | R | One | do- | |