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उत्पाद मैन्युअल
मेथनॉल (मेंथाइल अल्कोहल)- विशिष्टि
517 : 2020 के अनुसार

PRODUCT MANUAL FOR
METHANOL (METHYL ALCOHOL) - SPECIFICATION
ACCORDING TO IS 517: 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

1.	मानक संख्या **IS No.**	:	IS 517 : 2020
	शीर्षक **Title**	:	Methanol (Methyl alcohol)
	संशोधनों की संख्या **No. of amendments**	:	02
2.	नमूना दिशानिर्देश **Sampling Guidelines**		
a)	कच्चा माल **Raw material**	:	No specific requirement.
b)	समूहीकरण दिशानिर्देश **Grouping Guidelines**	:	कृपया, Annex- A देखें Please see Annex – A
c)	नमूने का परिमाण **Sample Quantity**	:	Quantity: 2 litre material sample may not be available in market)
d)	**परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर** **Parameters to be Declared in Test Request**	:	i. Grade ii. For Pure grade, whether or not meant for manufacture of antibiotics Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.

3.	परीक्षण उपकरणों की सूची **List of Test Equipment**	:	कृपया Annex- B देखें Please see Annex – B
4.	निरीक्षण और परीक्षण की स्कीम **Scheme of Inspection and Testing**	:	कृपया Annex- C देखें Please see Annex – C
5.	एक दिन में संभावित परीक्षण **Possible tests in a day**		
	All Tests.		
6.	लाइसेंस का दायरा **/Scope of the Licence:**		
	Licence is granted to use Standard Mark as per 517 : 2020 with the following scope:		
	Name of the product		Methanol (Methyl alcohol)/Repacked Methanol (Methyl Alcohol)
	Grade		i) Methanol, pure (not meant for manufacture of antibiotics) ii) Methanol, Technical iii) Methanol, Pure for manufacture of antibiotics

BUREAU OF INDIAN STANDARDS
ManakBhawan, 9, Bahadur Shah ZafarMarg,
New Delhi – 110002

ANNEX A

GROUPING GUIDELINES

1. IS 517 Methanol (Methyl alcohol) provides for the following grades depending on their purity and use :
   i. Methanol, Technical
   ii. Methanol, pure (not meant for manufacture of antibiotics)
   iii. Methanol, Pure for manufacture of antibiotics

2. Methanol, Pure for manufacture of antibiotics is purer form of methanol complying to the more stringent requirement for Acidity, as acetic acid (CH_3 COOH), Aldehydes and ketones as acetone (CH_3 $COCH_3$) and Residue on evaporation, than the requirement specified for Methanol, pure (not meant for manufacture of antibiotics)

3. Considering the above, the following grouping guidelines shall apply for Grant of Licence (GoL) /Change in Scope of Licence (CSoL).

   a) Each Grade, i.e., Methanol, Technical and Methanol, pure to be tested separately to be covered in the scope of Licence.

   b) If Methanol, Pure for manufacture of antibiotics is tested, Methanol, pure (not meant for manufacture of antibiotics) may also be included in the scope of licence

4. However, while considering grant of licence/inclusion of additional sizes/designs, it shall be ensured that the applicant/licensee has got the complete manufacturing and testing facilities for all the grades intended to be covered.

5. Scope of licence shall be restricted based on the manufacturing and testing facilities available.

6. During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible.

ANNEX – B

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sr. No.	Tests used in with Clause Reference	Test equipment
1.	Description, clause 4.1	Visual
2.	Miscibility with water, clause 4.2	Distilled water Glass vessel Constant-Temperature Bath Stop watch
3.	Relative density at 27°/27°C, sl no. (i) of Table 1 (clause 4.3)	(a) Standard hydrometer or (b) Westphal hydrostatic balance-appropriate setup as per ISS or (c) Relative density bottle or Pyknometer. Balance Distilled water
4.	Distillation Range at 760mm pressure, sl no. (ii) of Table 1 (clause 4.3)	Distillation apparatus with accessories as per IS specification Distillation Flasks Appropriate thermometers as per IS specification Barometric pressure measuring device
5.	Residue on evaporation, sl no. (iii) of Table 1 (clause 4.3) & sl no. (iii) of Table 2 (clause 4.4)	a) Estimation without preliminary Distillation Hot Air Oven Glass or silica crucible Weighing Balance Desiccator b) Estimation with Preliminary Distillation Preliminary Distillation Apparatus with accessories. Water bath / Hot plate /Bunsen flame Stop watch Hot air oven Desiccator
6.	Alkalinity (as NH_3) sl no. (iv) of Table 1 (clause 4.3)	Methyl Red Solution Standard Sulphuric Acid Porous Porcelain pieces

		conical flask with stopper Sodalime and Tube Hot plate
7.	Acidity, as acetic acid (CH_3 COOH) sl no. (v) of Table 1 (clause 4.3) & sl no. (i) of Table 2 (clause 4.4)	Phenolphthalein Indicator Standard Sodium Hydroxide Solution Porous Porcelain pieces conical flask with stopper Sodalime &Tube Burette
8.	Aldehydes and ketones as acetone (CH_3COCH_3), sl no. (vi) of Table 1 (clause 4.3)	Standard Sodium Hydroxide Solution Rectified Spirit Bromophenol Blue Indicator Hydroxylamine Hydrochloride Solution conical flask Water bath
9.	Sulphur and compounds of Sulphur (as S), sl no. (vii) of Table 1 (clause 4.3)	a) Combustion Method Combustion Apparatus with accesories Nessler Tube Absolute Alcohol Potassium Hydroxide Solution Lead Acetate Solution Sodium Peroxide Solution Concentrate Hydrochloric Acid Barium Chloride Solution Standard Sulphate Solution Soap Solution b) Reduction Method Reduction Apparatus with accessories Refrigerator Burette Two neck round bottom flask Nitrogen Gas with gas flow meter Acetone Raney Nickel Sodium Hydroxide Hydrochloric Acid Mercuric Acetate Solution di –isoamyl sulphide Methanol, Sulphur Free Dithizone Hydrogen sulphide Relux condenser

10.	Chlorine and Chlorine compounds, sl. no. (viii) of Table 1 (clause 4.3)	Alcoholic Caustic Potash Solution Dilute Sulphuric Acid Litmus Paper Sulphur Dioxide Water Concentrated Nitric Acid Silver Nitrate Solution Burette
11.	Water content, sl no. (ix) of Table 1 (clause 4.3)	Karl Fisher apparatus with all required accessories as per IS specification Weighing Balance Methanol 2-Methoxyethanol (Ethylene Glycol Monomethyl Ether) Iodine Pyridine Sulphur Dioxide Karl Fischer Reagent Flask coloured brown or painted black on the outside, fitted with a ground-glass stopper Dessicator Thermometer Sodium Tartarate, Crystalline Water-Methanol Standard Solution microburette or pipette volumetric flasks Aluminium Sodium Silicate/Activated Silica Gel Silicone Base Grease Oven
12.	Purity, sl. no. (x), Table 1 (clause 4.3)	Gas Chromatograph Syring Volumetric flask Micropipette Ultrapure water Nitrogen gas
13.	Aldehydes and ketones as acetone (CH_3 $COCH_3$) sl no. (ii) of Table 2 (clause 4.4)	**HYDROXY AMMONIUM CHLORIDE METHOD** *Standard Sodium Hydroxide Solution* *Rectified Spirit* *Bromophenol Blue Indicator* hydroxyl-amine hydrochloride conical flask Titration apparatus Measuring cylinder Weighing balance

		DINITROPHENYLHYDRAZINE METHOD Water bath Graduate Flask Photoelectric Absorptiometer or Spectrophotometer or flat bottom tubes Carbonyl free methanol Reflux Dinitrophenylhydrazine Potassium Hydroxide Standard Acetone **GAS CHROMATOGRAPHIC METHOD** Any gas liquid chromatograph equipped with on column injector and FID detector Relevant GC software/integrating device Any device capable of integrating chromatograph peak areas with a repeatability of ± 1 percent or less. *Reagent and Material* a) Ethanol (99 percent pure); b) Methanol, ethanol free; c) Acetone (AR grade); and d) Ethyl methyl ketone (AR grade).
14.	As per Appendix -F of IS 517	Sampling instruments (sampling tubes, sampling cans etc)

ANNEX C

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 theStandard 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 differenttests 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 : Manufacturer : For the purpose of this Scheme, each grade of Methanol (Methyl alcohol) produced in a continuous run of not more than 8 hours shall constitute a control unit.
1.3.2 For Repackaging unit: The entire quantity of material repackaged in one day from a single batch of ISI marked material received shall constitute one control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommendedlevels 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 requirementsof 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 housetesting 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.

2.1For the guidance of manufacturers, Table 1 giving the recommended levels of control is givenbelow. 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 perIS/ISO/IEC 17025.

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

2.2.1MSME 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 facilitiesor get testing done from BIS recognized/empaneled laboratory or any other laboratory having validNABL accreditation as per IS/ISO/IEC 17025.

2.3 **Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test 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.

2.3.1Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize theprovisions 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 commoncluster 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 each packaging 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 If material is supplied in tank cars, tank trucks, container ships etc. the Standard Mark as given in Schedule of the licence and Licence Number (i.e. CM/L) shall be incorporated on a test certificate to be provided along with each tank car/tank truck/container ship as per the format at Appendix-1 enclosed, provided always that the product thus marked conforms to all the requirement of the specification. Packing shall be done as per provisions of Indian Standard and the marking details as per Cl 5.2 of IS 517: 2020 shall also be indicated on the test certificate.

3.3 All containers (including containers/tankers for bulk transport) in which the material is stored or transported shall be marked in accordance with clause 6.2.4 the Indian Standard.

3.4 Additional Marking requirements: The material shall also be marked with the following additional requirement on each packaging:

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**
		Cl. Ref.	**IS**				
4.1	Description	4.1	IS 517	R	Three	Each control unit	-
4.2	Miscibility with water	4.2 and Annex - A	IS 517	R	One	Each control unit	-
4.3	Relative density at 27°/27°C,Max	4.3 & Table 1	IS 517& Cl 6 of IS 82	R	One	Each control unit	For pure and technical grade of methanol
	Distillation Range at 760 mm pressure	4.3 & Table 1	IS 517& IS 1448 (Part 18)	R	One	Each control unit	For pure and technical grade of methanol
	Residue on evaporation, percent by mass, Max	4.3 & Table 1	IS 517& Cl 8 of IS 82	R	One	Each control unit	For pure and technical grade of methanol
	Alkalinity (as NH_3), percent by mass, Max	4.3 & Table 1	Annex B-1 of IS 517	R	One	Each control unit	For pure and technical grade of methanol
	Acidity, as acetic acid (CH_3COOH), percent by mass, Max	4.3 & Table 1	Annex B-2 of IS 517	R	One	Each control unit	For pure and technical grade of methanol
	Aldehydes and ketones as acetone (CH_3COCH_3), percent by mass, Max	4.3 & Table 1	Annex C-1 or C-3 of IS 517	R	One	Each control unit	For pure and technical grade of methanol
	Sulphur and compounds of Sulphur (as S), percent by mass, Max	4.3 & Table 1	Annex D of IS 517	R	One	Each control unit	For pure grade of methanol only
	Chlorine and Chlorine compounds	4.3 & Table 1	Annex E of IS 517	R	One	Each control unit	For pure grade of methanol only
	Water content, percent by mass, Max	4.3 & Table 1	IS 2362	R	One	Each control unit	For pure and technical grade of methanol
	Purity, percent by mass, Min	4.3 & Table 1	Annex G of IS 517	R	One	Each control unit	For pure and technical grade of methanol

4.4	Acidity, as acetic acid (CH_3 COOH), percent by mass, Max	4.4 & Table 2	Annex B-2 of IS 517	R	One	Each control unit	Only for Methanol, Pure for manufacture of antibiotics
	Aldehydes and ketones as acetone (CH_3 $COCH_3$), percent by mass, Max	4.4 & Table 2	Annex C-2 or C-3 of IS 517	R	One	Each control unit	Only for Methanol, Pure for manufacture of antibiotics
	Residue on evaporation, percent by mass, Max	4.4 & Table 2	IS 517& Cl 8 of IS 82	R	One	Each control unit	Only for Methanol, Pure for manufacture of antibiotics

TABLE 2
RECORD OF METHANOL (REPACKAGED)
AS PER IS 517 : 2020

Sl. No.	Name of the manufacturer	Particulars of test reports received with C.U/Batch no.	Date of manufacture	Quantity received	Date of receipt	Date of repacking	Batch no.	Details of repacking		Total quantity repacked	Details of dispatch
								Size of Packing	No.		
1	2	3	4	5	6	7	8	9	10	11	12

Appendix-1
TEST CERTIFICATE

XYZ COMPANY (REGISTERED OFFICE ADDRESS AND WORKS ADDRESS)

TEST CERTIFICATE FOR METHANOL (METHYL ALCOHOL)

TEST CERTIFICATE NO._____DATED_____

SUPPLIED TO M/s _____(Name and Address of Consignee)

It is certified that the material described below fully conforms to IS 517 : 2020
The properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks License No. CM/L _____are as indicated below against each order no. etc.

(PLEASE REFER TO IS 517 : 2020 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order no and date	Name of the material	Test	Requirement	Observed value	Control Unit/ Batch Number	Month and Year of manufacture	Quantity	Remarks
		Description						
		Miscibility with water						
		Relative density at 27°/27°C						
		Distillation Range at 760 mm pressure						
		Residue on evaporation, percent by mass						
		Alkalinity (as NH_3), percent by mass						
		Acidity, as acetic acid (CH_3COOH), percent by mass, Max						
		Aldehydes and ketones as acetone (CH_3COCH_3), percent by mass						
		Sulphur and compounds of Sulphur (as S), percent by mass						
		Chlorine and Chlorine compounds						
		Water content, percent by mass						
		Purity, percent by mass						
		Acidity, as acetic acid (CH_3COOH), percent by mass						
		Aldehydes and ketones as acetone (CH_3COCH_3), percent by mass						
		Residue on evaporation, percent by mass						

The material supplied conforms to specified requirements of IS 517 : 2020

REMARKS:
Tank Car / Tank Truck / Container ship no.

(Signature)
For XYZ Company

MATERIAL SUPPLIED BY
Name and Address of manufacturer:
Recognized Trade Mark if any:

'FLAMMABLE!
INGESTION OR ABSORPTION DANGEROUS!
CAUSES BLINDNESS!
CUMULATIVE POISON!'

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