PRODUCT MANUAL FOR METHANOL (METHYL ALCOHOL) ACCORDING TO IS 517:1986

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 517:1986
	Title	:	Methanol (Methyl alcohol)
	No. of Amendment(s)	:	2
2	Sampling Guidelines:		
a)	Raw material	:	No specific requirement
b)	Grouping guidelines	:	Not applicable – each grade to be tested
c)	Sample Size	:	Quantity: 2 litre
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 517:1986 with the following scope:		
	Name of the Product	Methanol (Methyl alcohol)	
	Grade	i) Methanol, pure (not meant for manufacture of antibiotics) ii) Methanol, Technical iii) Methanol, Pure for manufacture of antibiotics	

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ANNEX A
List of Test Equipment

Major test equipment required to test as per requirements of Indian Standard.

SI. NO.	TEST EQUIPMENT/CHEMICAL	Tests used in with Clause Reference
1	Visual	Description, clause 3.1
2	Distilled water Glass vessel Constant-Temperature Bath Stop watch	Miscibility with water, clause 3.2
3	(a) Standard hydrometer Standard Hydrometer (b)Westphal hydrostatic balance Westphal hydrostatic balance-appropriate setup a per ISS (c) Relative density bottle or Pyknometer. Pyknometer Balance Distilled water	Relative density at 27°/27°C, sl no. (i) of Table 1 (clause 3.3)
4	Distillation apparatus with accessories as per IS specification Distillation Flasks Appropriate thermometers as per IS specification Barometric pressure measuring device	Distillation Range at 760mm pressure, sl no. (ii) of Table 1 (clause 3.3)
5	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	Residue on evaporation, sl no. (iii) of Table 1 (clause 3.3) & sl no. (iii) of Table 2 (clause 3.4)
6	Methyl Red Solution Standard Sulphuric Acid Porous Porcelain pieces conical flask with stopper Sodalime and Tube Hot plate	Alkalinity (as NH_3) sl no. (iv) of Table 1 (clause 3.3)
7	Phenolphthalein Indicator Standard Sodium Hydroxide Solution Porous Porcelain pieces conical flask with stopper Sodalime &Tube Burette	Acidity, as acetic acid (CH_3 COOH) sl no. (v) of Table 1 (clause 3.3) & sl no. (i) of Table 2 (clause 3.4)

8	Standard Sodium Hydroxide Solution Rectified Spirit Bromophenol Blue Indicator Hydroxylamine Hydrochloride Solution conical flask Water bath	Aldehydes and ketones as acetone (CH_3COCH_3), sl no. (vi) of Table 1 (clause 3.3)
9	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	Sulphur and compounds of Sulphur (as S), sl no. (vii) of Table 1 (clause 3.3)
10	Alcoholic Caustic Potash Solution Dilute Sulphuric Acid Litmus Paper Sulphur Dioxide Water Concentrated Nitric Acid Silver Nitrate Solution Burette	Chlorine and Chlorine compounds Table 1 (clause 3.3)
11	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,	Water content, Table 1 (clause 3.3)

	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	Gas Chromatograph Syring Volumetric flask Micropipette Ultrapure water Nitrogen gas	Purity, Table 1 (clause 3.3)
13	Water bath Graduate Flask Photoelectric Absorptiometer or Spectrophotometer or flat bottom tubes Carbonyl free methanol Reflux Dinitrophenylhydrazine Potassium Hydroxide Standard Acetone	Aldehydes and ketones as acetone (CH_3 $COCH_3$) sl no. (ii) of Table 2 (clause 3.4)
14	Sampling instruments (sampling tubes, sampling cans etc)	As per Appendix -F of IS 517

Note: The list above is only indicative 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 equipments.

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 license shall be printed on each container and on the label applied to the container; provided always that the material in each container on which this Mark is thus applied conforms to every requirement 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 marked on each container or the labels affixed to each container:
i) Licence No. (CM/L……)
ii) BIS website details: 'For BIS certification details please visit www.bis.gov.in' .

4. CONTROL UNIT – For the purpose of Table 1 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.

5. LEVELS OF CONTROL - The tests as indicated in Table 1, and at the levels of control specified therein, shall be carried out on the whole production of the factory covered by this scheme and appropriate records maintained in accordance with clause 2 above and charts may be maintained as per clause 3 above. All the production which conforms to the Indian Standard and covered by this licence shall be marked with Standard Mark.

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 …..

TABLE 1
LEVELS OF CONTROL

(1)				(2)	(3)		
Test Details				**Test equipment requirement R: required (or) S: Sub-contracting permitted**	**Levels of Control**		
Cl.	**Requirement**	**Test Methods Clause Reference**			**No. of Sample**	**Frequency**	**Remarks**
3.1	Description	3.1	IS 517	R	Three	Each control unit	-
3.2	Miscibility with water	3.2 and Appendix A	IS 517	R	One	Each control unit	-
3.3	Relative density at 27°/27°C,Max	3.3 & Table 1	IS 517& Cl 6 of IS 82	R	One	Each control unit	For pure and technical grade of methanol
	Distillation Range at 760mm pressure	3.3 & Table 1	IS 517& Method A of IS 1448:Part 18	R	One	Each control unit	For pure and technical grade of methanol
	Residue on evaporation, percent by mass, Max	3.3 & 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	3.3 & Table 1	Appendix B-1 of IS 517	R	One	Each control unit	For pure and technical grade of methanol
	Acidity, as acetic acid (CH_3 COOH), percent by mass, Max	3.3 & Table 1	Appendix B-2 of IS 517	R	One	Each control unit	For pure and technical grade of methanol
	Aldehydes and ketones as acetone (CH_3 $COCH_3$), percent by mass, Max	3.3 & Table 1	Appendix C-1 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	3.3 & Table 1	Appendix D of IS 517	R	One	Each control unit	For pure grade of methanol only
	Chlorine and Chlorine compounds	3.3 & Table 1	Appendix E of IS 517	R	One	Each control unit	For pure grade of methanol only
	Water content, percent by mass, Max	3.3 & Table 1	IS 2362	R	One	Each control unit	For pure and technical grade of methanol

	Purity, percent by mass, Min	3.3 & Table 1	Annex G of IS 517	R	One	Each control unit	For pure grade of methanol only
3.4	Acidity, as acetic acid (CH_3 COOH), percent by mass, Max	3.4 & Table 2	Appendix B-2 of IS 517	R	One	Each control unit	Only for Methanol to manufacture of antibiotics
	Aldehydes and ketones as acetone (CH_3 $COCH_3$), percent by mass, Max	3.4 & Table 2	Appendix C-2 of IS 517	R	One	Each control unit	Only for Methanol to manufacture of antibiotics
	Residue on evaporation, percent by mass, Max	3.4 & Table 2	IS 517& Cl 8 of IS 82	R	One	Each control unit	Only for Methanol to manufacture of antibiotics

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 approval to BO Head.