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उत्पाद मैन्युअल

डीजल इंजन इंजिन – एन.ओ.एक्स. कटौती

अभिकर्मक ए.यू.एस. 32

भाग 1 गुणता अपेक्षायें

आई एस 17042 (भाग **1) : 2020**/आईएसओ **22241-1 : 2019 के अनुसार**

PRODUCT MANUAL
FOR
Diesel Engines — NO_x Reduction Agent AUS 32
Part 1 Quality Requirements
According to IS 17042 (Part 1) : 2020/ISO 22241-1 : 2019

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 17042 (Part 1) : 2020/ISO 22241-1 : 2019
	शीर्षक **Title**	:	Diesel Engines – NO_x Reduction Agent AUS 32, Part 1 Quality Requirements
	संशोधनों की संख्या **No. of amendments**	:	NIL
2.	**नमूना दिशानिर्देश** **Sampling Guidelines**		As per Annex A of IS 17042 (Part 2):2020/ISO 22241-2:2019
a)	**कच्चा माल** **Raw material**	:	No specific requirement
b)	**समूहीकरण दिशानिर्देश Grouping Guidelines**	:	Not applicable
c)	**नमूने का परिमाण** **Sample Quantity**	:	2 ltr
3.	**परीक्षण उपकरणों की सूची** **List of Test Equipment**	:	Please refer Annex -A

4.	**निरीक्षण और परीक्षण की स्कीम** **Scheme of Inspection and Testing**	:	Please refer Annex -B
5.	**एक दिन में संभावित परीक्षण** **Possible tests in a day**	:	All tests can be done in a day.
6.	**लाइसेंस का दायरा /Scope of the Licence:**		
	Licence is granted to use Standard Mark as per IS 17042 (Part 1) : 2020/ISO 22241-1 : 2019 with the following scope:		
	Name of the product	Diesel Engines – NO_x Reduction Agent AUS 32, Part 1 Quality Requirements	
	Designation	AUS 32	

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

ANNEXURE A

LIST OF TESTING EQUIPMENT

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Test used in	Clause reference	Test equipment/Apparatus/Chemicals
1.	Urea content	Clause 5/ ISO 22241-2 Annex B or ISO 22241-2 Annex C	Apparatus: Automatic nitrogen analyser, Analytical balance, Auxiliary devices for sample preparation (tweezers, micro- spatula, pipette), Customary chemically resistant glass, Chemicals: De-ionized water, Auxiliary combustion agent and other equipments, Standard substances for nitrogen determination, Oxygen, min. 99,995 %, Other ultrapure gases¸Other reagents or auxiliary agents OR Apparatus: Refractometer, Analytical balance, Thermostat, Drying oven , 150 ml beaker, Typical laboratory glass Chemicals: De-ionized water, Urea, (crystalline), Urea test solution, CRM of known RI
2.	Refractive index at 20 °C c	Clause 5/ ISO 22241-2 Annex C	Apparatus: Refractometer, Analytical balance, Thermostat, Drying oven, 150 ml beaker, Typical laboratory glass Chemicals: De-ionized water, Urea, (crystalline), Urea test solution, CRM of known RI
3.	Alkalinity as NH3	Clause 5/ ISO 22241-2 Annex D	Apparatus: Analytical balance, Automatic burette, Potentiometer, Magnetic stirrer, Beaker, Measuring cylinder, Chemicals: distilled or de-ionized water, Hydrochloric acid., Buffer solutions
4.	Biuret content	Clause 5/ ISO 22241-2 Annex E	Apparatus: Laboratory balance, Vacuum filtration unit, Vacuum filtration unit, Spectrophotometer, Volumetric flasks, Pipettes, Rotary evaporator, Constant- temperature bath Chemicals: Chemicals of analytical grade Saturated potassium carbonate-solution Copper sulphate-solution, Alkaline potassium sodium tartrate-solution, Biuret- standard-solution
5.	Aldehydes	Clause 5/ ISO 22241-2 Annex F	Apparatus: Balance, Spectrophotometer, Volumetric flasks, Pipettes Chemicals: Chemicals of analytical grade,

			Sulphuric acid, Chromotropic acid, Formaldehyde standard solution
6.	Insoluble matter	Clause 5/ ISO 22241-2 Annex G	Apparatus: Filtration equipment for vacuum filtration, Membrane filter, Petri dish with cover, Flat-tipped tweezers, Analytical balance, Balance, Glass beaker, Drying oven, Desiccator filled with a drying agent, Standard laboratory glass Chemicals: De-ionized water
7.	Phosphate (PO_4)	Clause 5/ ISO 22241-2 Annex H	Apparatus: Analytical balance, Incineration dish (platinum or quartz glass), Heating plate or sand bath, Muffle furnace (700°C), Spectrophotometer, Cells, Graduated flasks, Bulb pipettes. Chemicals: De-ionized water, Calcium carbonate, Hydrochloric acid, Sulphuric acid, Ascorbic acid, Ammonium heptamolybdate tetrahydrate, Potassium antimony (III) oxytartrate hemihydrates, Ascorbic acid solution, Molybdate solution, Potassium hydrogen phosphate, Phosphate stock solutions
8.	Aluminium, Calcium, Chromium, Copper, Iron, Potassium, Magensium, Sodium, Nickel, Zinc	Clause 5/ ISO 22241-2 Annex I	Direct determination: Apparatus: Volumetric flask, Fixed volume pipette or variable piston pipettes, Atomic emission spectrometer with inductively coupled plasma (ICP-OES) Reagents and materials: Water, in accordance with ISO 3696 grade 1 or water with resistance of 18.2 MΩ, 32.5% urea solution, 65 % Nitric Acid, 37% hydrochloric acid, Single-element standard stock solutions, Multi-element standard stock solutions, Internal standard solution, Argon, with a purity ≥99,996.

ANNEXURE 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 product manufactured in one day under similar conditions 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 with test facilities for routine tests (indicated as "R" in Column 2 of Table 1)**, where different tests given 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 laboratory or 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 license shall be incorporated on each container of the product provided that the product contained in the container thus marked conforms to the 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 pack of disposable baby diapers:
a) "For BIS certification details please visit www.bis.gov.in"

Note: In case a manufacturer with same brand name is holding BIS licences at multiple premises (units) under same ownership and opts for marking multiple licence numbers on the unified label, the same may be considered, provided the identification and traceability of the product, is established as envisaged.

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 R: required S: Sub Contracting**	**LEVELS OFCONTROL**		
Cl.	**Requirement**	**Test Methods**			**No. of samples**	**Frequency**	**Remarks**
		Clause	**Reference**				
5	**Quality Requirements, Table 1**						
i.	Urea content		ISO 22241-2 Annex B ISO 22241-2 Annex C	R	One	Each control Unit	
ii.	Refractive index at 20 °C		ISO 22241-2 Annex C	R	-do-	-do-	
iii.	Alkalinity as NH_3		ISO 22241-2 Annex D	R	-do-	-do-	
iv.	Biuret		ISO 22241-2 Annex E	R	-do-	-do-	
v.	Aldehydes		ISO 22241-2 Annex F	R	-do-	-do-	
vi.	Insoluble matter		ISO 22241-2 Annex G	R	-do-	-do-	

vii.	Phosphate (PO_4)		ISO 22241-2 Annex H	R	-do-	-do-	
viii.	Aluminium, Calcium, Chromium, Copper, Iron, Potassium, Magnesium, Sodium, Nickel, Zinc		ISO 22241-2 Annex I	R	-do-	-do-	