



PRODUCT MANUAL
FOR MINERAL MIXTURES FOR SUPPLEMENTING POULTY
FEEDS
ACCORDING TO IS 5672:1992

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 5672:1992
	Title	:	Mineral Mixtures for Supplementing Poultry Feeds.
	No. of Amendments	:	02
2.	Sampling Guidelines:		
a)	Raw material	:	As per clause 3.1 of IS 5672.
b)	Grouping guidelines	:	NA (No varieties of the product mentioned in IS)
c)	Sample Size	:	2 x 500g for complete testing.
3.	List of Test Equipment	:	Please refer <u>ANNEX –A</u>
4.	Scheme of Inspection and Testing	:	Please refer <u>ANNEX –B</u>
5.	Possible tests in a day :		
	(i) Description	(ii) Freedom from adulterants, insect or visible	
	(iii) Moisture	fungus infestation and undesirable odour	
	(iv) Calcium	(v) Phosphorus	
	(vi) Iron	(vii) Iodine	
	(viii) Copper	(ix) Manganese	
	(x) Fluorine	(xi) Zinc	
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 5672:1992 with the following scope:		
	Name of the product	Mineral Mixtures for Supplementing Poultry Feeds.	

ANNEX A
TO PRODUCT MANUAL
FOR MINERAL MIXTURES FOR SUPPLEMENTING POULTRY FEEDS
ACCORDING TO IS 5672:1992

LIST OF TEST EQUIPMENT

Major test equipment required to test as per the Indian Standard

S.no.	Test equipment	Test used in with clause reference.
1.	IS sieve 106 μ	Description CI 3.2
2.	<p>Sterile Sodium Chloride Solution (Normal Saline) - 0.9 percent (m/v), Blood agar medium (Nutrient agar medium, sterile defibrinated blood (5 to 10 percent by mass), collected aseptically from a healthy sheep) Water Bath capable of maintaining 48°C,70°C, Laminar air flow, Bunsen burner with LPG cylinder or spirit lamp, Petriplates, Incubator capable of maintaining 37°C, Autoclave, Hot air oven , Centrifuge , Inoculation loop, Gram staining kit, Microscope, cover slips, glass slides, immersion oil.</p> <p>Biochemical tests: Methylene blue, Salicin, Beef extract, Phenol red,(Salicin is used for the Fermentation of salicin test), Gelatin [generally, nutrient gelatin medium (readymade or ingredients: Gelatin, peptone and beef extract) is used for the Gelatin liquefaction test], Litmus Milk [generally, litmus milk broth (readymade or ingredients: skimmed milk powder and litmus) is used for litmus milk test], Lecithinase [generally, egg yolk agar (readymade or ingredients: Proteose peptone, Disodium phosphate, Monopotassium phosphate, Sodium chloride, Magnesium sulphate, Glucose, Hemin, Agar)] Biological tests: Two Guinea Pigs. Loeffler's Alkaline Methylene Blue Stain.</p>	Freedom from spores of Bacillus anthracis CI 3.5
3.	<p>Peptic digest of beef heart or the corn steep casein glucose broth to which 0.2 percent of soluble starch is added</p> <p>Peptic Digest of Beef Heart- ground and defatted beef heart, distilled water, HCl, p^H meter, Pepsin, Incubator capable of maintaining 45 to 50°C, Sodium hydroxide, peptone, glucose, steam sterilizer, filter paper</p> <p>Corn Steep Casein Glucose Broth- casein, distilled water, HCl, pH meter, glucose, corn steep liquor, Autoclave</p>	Freedom from spores of Clostridium sp. 5 and 6 of IS 7874 (Part 3) : 1975.

	<p>Conical flasks, water bath capable 80°C, Incubator(s) maintaining temperatures of 20°C, 25°C, 35°C, 37°C with anaerobic jars, Blood agar, Egg yolk agar, microscope, grams staining kit, Millipore filter papers 0.45µm, two guinea pigs</p> <p>Sterile Sodium Chloride Solution. Centrifuge, Water Bath capable of maintaining 70°C, two guinea pigs, sterile calcium chloride solution (3 percent m/v), anaerobic jar, Laminar air flow, Bunsen burner with LPG cylinder or spirit lamp, Petriplates, Incubator capable of maintaining 37°C, Autoclave, Hot air oven, Blood agar medium</p>	
4.	Weighing balance, aluminium dish with a cover, having a diameter of at least 50 mm and a depth of about 40 mm, air-oven maintained at 100 °C, desiccator	Moisture CI 3.4 & 6.1, table 1 (i)
5.	<p>Determination of calcium as per IS 15121 (Referee method):</p> <p>Water, complying with at least grade 3 in accordance with ISO 3696, Concentrated hydrochloric acid, Hydrochloric acid, Dilute hydrochloric acid, Lanthanum nitrate solution, Caesium chloride solution, Stock solution of Ca, Standard solution of Ca. Analytical balance, capable of weighing to the nearest 0,1 mg, Incineration dishes of platinum, quartz or porcelain, free from potassium and sodium, with a smooth unetched inner surface, upper internal diameter 4 cm to 6 cm, lower internal diameter 2 cm to 2,5 cm, and a height of about 5 cm, Glassware of hard borosilicate glass, Electric hot plate or gas burner, Boiling water bath, Electric muffle furnace, capable of being maintained at (550 & 15) °C, Atomic absorption spectrometer, provided with an air-acetylene flame and a facility for correction for, or measurement of, background absorption, Hollow cathode lamps or electrode-less discharge lamps, filter paper which does not release minerals, spatula.</p> <p>Determination of calcium as per IS 13433 (Part 1):</p> <p>Hydrochloric acid 30 %, Nitric acid conc., sulphuric acid 20 %, Ammonia solution 33 %, Ammonium oxalate, Citric acid monohydrate, Ammonium Chloride, Bromocresol green, Potassium Permanganate, Electric muffle furnace, Incinerating dish, Sintered glass filter crucible, Boiling water bath, beakers- 250 ml, volumetric flask- 250 ml, Analytical balance, 1.00 mm IS test sieve, glass bottle with stopper.</p>	Calcium CI 3.4 & 6.1, Table 1 (ii)
6.	Concentrated Nitric Acid - r.d. 1.42, Nitric Acid (1: 1), Ammonium Molybdate Stock Solution- powdered ammonium molybdate, stoppered graduated cylinder 1000 ml capacity, 25 percent (m/v) ammonium hydroxide solution, fluted filter paper, Nitric Acid Solution -- 2 % (m/v)., Potassium Nitrate Solution - 3 % (m/v).	Phosphorus CI 3.4 & 6.1, table 1 (iii)

	Standard Sodium hydroxide solution -- 0.1 N, Standard Nitric Acid Solution - 0.1 N, Phenolphthalein Indicator Solution, rectified spirit, Beaker 150ml, a disc of whatman filter paper No. 42 in a Gooch crucible or 9 cm Whatman filter paper No. 42 over an ordinary funnel, test tube, Burette,	
7.	Heat Resistant Glass Tube - of 50 ml capacity, marked at 30 ml, Centrifuge suitable for clarifying the isoamyl alcohol phase, Photoelectric Calorimeter capable of measuring optical density at 495 nm, Distilled Water – redistilled, Concentrated Sulphuric acid- r.d. 1.84, Perchloric Acid - 60 percent (m/m) solution, Concentrated. Nitric Acid - 60 percent(m/m), Ammonium Hydroxide Solution -25percent(m/m), Concentrated Hydrochloric Acid - 35 percent(m/m), Hydrogen Peroxide Solution - 0.1 percent (m/m) , brown bottle, refrigerator, Isoamyl Alcohol - of boiling point 129 to 132°C, Potassium Thiocyanate Solution, ferrous ammonium sulphate concentrated sulphuric acid, potassium permanganate solution (approximately 0.1 N), graduated flask-1L, Pipette 10 ml, hydrogen peroxide solution, 200-ml Erlenmeyer flask.	Iron CI 3.4 &6.1, table 1 (iv)
8.	Takadiastase, Methyl Orange Indicator, Dilute Sulphuric Acid - approximately 2 N, Bromine Water - Saturated aqueous solution, Burette, 10% potassium iodide solution, dilute sulphuric acid, 0.1 N sodium thiosulphate solution, Sodium Sulphite Solution -approximately one percent (m/v),Phenol Solution - approximately 5 % (m/v),Potassium Iodide solution - approximately 10% (m/v), Standard Sodium Thiosulphate Solution - 0.005 N (freshly standardized),Starch Solution – 1% (freshly prepared) (m/v),Sodium Chloride Solution, Potassium Iodide Control Solution, Concentrated Sulphuric Acid- r.d. 1.84	Iodine CI 3.4 &6.1, table 1 (v)
9.	glassware free from copper contamination, Heat Resistant Glass Tube - of 50 ml capacity and marked at 30 ml, Centrifuge - capable of clarifying the isoamyl alcohol phase. Photoelectric Calorimeter - capable of measuring the optical density at 430 nm, Distilled Water - redistilled. Sodium Citrate Solution - . saturated. Ammonium Hydroxide Solution - 20 percent (m/v), Isoamyl Alcohol -boiling point 129 to 132°C, Sodium Diethyldithiocarbamate Solution - 0.1 percent (m/v) aqueous, Standard Copper Solution - cupric sulphate pentahydrate (CuSO ₄ 5 H ₂ O) of analytical grade, concentrated sulphuric acid, graduated flask- 1L,Pipette-10ml,phenolphalein	Copper CI 3.4 &6.1, table 1 (vi)
10.	Photoelectric Calorimeter - Capable Of Measuring Optical Density Of 520 Nm, Concentrated Sulphuric Acid - R.D. 1.84,Sulphurous Acid- Amber Bottle, Sulphuric Acid, Phosphoric Acid, Potassium Periodate, Sodium Metabisulphite Solution - 10 Percent (M/V), Aqueous, Phosphoric Acid -	Manganese CI 3.4 &6.1, table 1 (vii)

	R.D. 1.70, Concentrated Nitric Acid - R.D. 1.42, Standard Manganese Solution - Dry Potassium Permanganate, Concentrated Sulphuric Acid, Sodium Metabisulphite Solution, 2L Graduated Flask, silica dish, muffle furnace at 600 to 700°C, 150-ml beaker, hot-plate, using a boiling tube, small disc of ashless filter paper, 150-ml beaker	
11.	Distillation Flasks, Nessler Tubes - of 50 ml capacity, Microburette, Lime Water Freed from Fluorine, fluorine-free sodium hydroxide. Buchner funnel Perchloric Acid Solution - 60 to 70 percent (m/v), Hot plate capable of 140 to 150°C, Silver Perchlorate Solution - 1 percent (m/v), silver nitrate, Sodium Hydroxide Solution - 0.5 N., Alizain indicator Solution - sodium alizarin sulphonate, Dilute Hydrochloric Acid, hydroxylamine hydrochloride, Thorium Nitrate Solution, Standard Fluorine Solution, graduated flask – 1L, Pipette-10 ml, weighing balance, Muffle furnace capable of 550±20°C, Graduated flask-200ml, Nessler tube, Microburette	Fluorine Cl 3.4 & 6.1, table 1 (viii)
12.	photo-electric calorimeter or suitable spectrophotometer capable of measuring optical density at a wavelength of 540 nm, Copper sulphate, Ammonium Citrate Solution, Ammonium hydroxide, dithizone solution, carbon tetrachloride, chloroform, α -Nitroso- β naphthol Solution Chloroform –redistilled, amber bottle, Dithizone Solution-dithizone, ammonia solution, carbon tetrachloride, ashless filter paper, Carbon Tetrachloride –redistilled, Standard Hydrochloric Acid Solution - 0.04 N, Standard zinc Solution - pure granulated zinc, Ammonium Hydroxide Solution, Hydrochloric Acid, Bromine Water, Hydrogen Sulphide, Methyl Red Indicator Solution methyl red, ethyl alcohol, Phenol Red Indicator Solution, fine filter paper, 125 ml separating funnel, separating funnel, pipette	Zinc Cl 3.4 & 6.1, table 1 (xi)
13.	porcelain, silica or platinum dish, HCl, Meker burner, muffle furnace 550 ± 20°C, electric air-oven maintained at 135 ± 2°C, watch-glass, water bath, Whatman filter paper no.42 or its equivalent, Silver nitrate solution, Desiccator	Acid insoluble ash Cl 3.4 & 6.1, table 1 (x)

List above is only indicative and may not be taken as exhaustive.

ANNEX-B

**SCHEME OF INSPECTION AND TESTING
FOR MINERAL MIXTURES FOR SUPPLEMENTING POULTRY FEEDS
ACCORDING TO IS 5672:1992**

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.

1.1The 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 licence, shall be stenciled/printed on each container of Mineral Mixtures for Supplementing Poultry Feeds or printed on the label applied to it, as the case may be, provided always that the material in each container to which this mark is thus applied, conform to every requirement of the specification.

3.1 Packing and marking shall be done as per the provision of the Indian Standard. In addition, the following details shall be mentioned on each container legibly and indelibly:

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 quantity of mineral mixture homogenized at a time in a batch mixer shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, 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.

6. RAW MATERIAL – A representative sample from every consignment of bone meal, calcined bone meal, and oyster shell grit shall be tested for freedom from spores of *Bacillus anthracis*, *Clostridium* sp., and records maintained.

7. 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		
Cl.	Requirement	Test Methods Cl. Ref.	Test Method IS		No. of Sample	Frequency	Remarks
3.2	Description, Fineness,	3.2	IS 5277	R	One	Each control unit	
3.3	Freedom from adulterants, insect or visible fungus infestation and undesirable odour.	3.3	-do-	R	One	Each control unit	
3.5	Freedom from spores of Bacillus anthracis.	4	IS 7874 (Part 3)	S	One	Once a month	
3.5	Freedom from spores of Clostridium sp.	5 and 6	IS 7874 (Part 3)	S	One	Once a month	
3.4 & 6.1, Table 1 (i)	Moisture % by mass	4	IS 7874 (Part 1)	R	One	Each 10 th control unit	Please see note-1
3.4 & 6.1, Table 1 (ii)	Calcium,% by Mass	-	IS 15121 or IS 13433 (Part 1)	R	One	Each 10 th control unit	Please see note-1
3.4 & 6.1, Table 1 (iii)	Phosphorus,% by mass	6	IS 7874 (Part 2)	R	One	Each 10 th control unit	Please see note-1
3.4 & 6.1, Table 1 (iv)	Iron, ppm	7	IS 7874 (Part 2)	R	One	Each 10 th control unit	Please see note-1
3.4 & 6.1, Table 1 (v)	Iodine,% by mass	8	IS 7874 (Part 2)	R	One	Each 10 th control unit	Please see note-1
3.4 & 6.1, Table 1 (vi)	Copper, ppm	9	IS 7874 (Part 2)	R	One	Each 10 th control unit	Please see note-1

3.4 & 6.1, Table 1 (vii)	Manganese,% by mass	10	IS 7874 (Part 2)	R	One	Each 10 th control unit	Please see note-1
3.4 & 6.1, Table 1 (viii)	Fluorine,% by mass	12	IS 7874 (Part 2)	R	One	Each 10 th control unit	Please see note-1
3.4 & 6.1, Table 1 (ix)	Zinc,% by mass,	13	IS 7874 (Part 2)	R	One	Each 10 th control unit	Please see note-1
3.4 & 6.1, Table 1 (x)	Acid insoluble ash,% by mass,	10	IS 7874(Part 1)	R	One	Each 10 th control unit	Please see note-1

Note-1: To start with every control unit shall be tested for conformity to the specification requirements till such time as three consecutive control units are found to be satisfactory, then the frequency of every 10th control unit may be followed. The same procedure shall be followed in case of finding any failure, or when the recipe of mixture is changed.

Note-2: 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-3: 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 by BO Head.