



BP/Direct/302A
Date- 01.09.2021

Sub: Data for SDOTE/OTE cases in vendor registration portal
Ref.: PV Letter No. 3210/Genl/PV/MI Dt. 23/03/2021

As per referred letter, Manufacturing Technology and Testing/Inspection facility for Protein Colloid is as below:

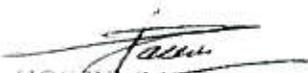
(1). Manufacturing Technology:

- (a) **Raw materials:** In India protein colloid/bone glue is produced from cattle (pig, buffalo, cow, horse and goat) hide or skin and bones. Main proportion is manufactured from bones of buffalo.
- (b) **Process to manufacture Protein colloid:** It contains following steps;
- I. Raw material collection: Raw material (bones) is collected from different abattoirs.
 - II. Size Reduction of bones: Size of bones reduced from help of hammer.
 - III. Washing and treatment with lime water: The bones are washed thoroughly with warm water to remove fat and dirt. After that bones are soaked in the hydrated lime solution (Molarity 1M) for three days to eliminate odor and all traces of hair and flesh attached to the bones. Ratio maintained at this stage is 1g of bone sample mixed with 5cm³ of lime solution. After three days bones are removed and rinsed with hot water to remove traces of lime water.
 - IV. Premixing with dilute acid: Bones are mixed with dilute hydrochloric acid (5-7% by weight) for breakdown of collagen from bones to make glue.
 - V. Shredding and crushing: The bone samples are dried for two days and crushed in a Jaw crusher to particle size of about 0.015mm (300mesh).
 - VI. Heating and evaporation: Fine bones are mixed with water in ratio of 75 ml of water for 100 g of bones and heated at 70°C for three hours. In this process bones further losses remaining traces of collagen as glue.
 - VII. Gelling/cooling: The resulting bone glue is cooled on room temperature for one hours. On cooling a jelly type material is formed.
 - VIII. **QUALITY CONTROL/IMPROVEMENT:** Polyvinyl acetate (PVA) is added to the glue in the ratio 1:4 (volume) to make the glue formed more jelly. The mixture is stirred vigorously to achieve homogeneity. 10ml of formaldehyde is added to prevent mold, bacterial growth and improve shelf life.
 - IX. Drying and pulverization: The glue is dried in a dryer to remove unwanted moisture. This gives hard and brittle sheets of the glue which can be stored. The brittle sheets can be broken into pieces or flakes and ground into fine particles according to the desired particle size or user's specification.

Mukesh
QA

(2). Testing/Inspection Facility:

Sl. No.	Parameter	Testing Facility
1.	Moisture Content % by mass	Heating Oven (100-105°C). Moisture Dish *
2.	Insoluble Residue. % by Mass	Glass Crucible G4, HCL
3.	Total Ash Content. % by Mass	Silica crucible, Desiccator, Weighing balance
4.	Acidity (Inorganic)	Distilled Water, 0.1% Methyl Orange Solution
5.	Organic Acidity(Acetic Acid)	0.1N NaOH solution, Phenolphthalein indicator
6.	Gum with Tannin Base	0.3 N Ferric Chloride sol.
7.	Starch and Dextrin	0.1 N Iodine sol.


HOS/WI (Member)


01.09.21
HOS/LY (Member)
M. N. Nandi


HOS/BP (Member)


DO/BP (Chairman)

To.

DO/PV