

GELATIN



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INTRODUCTION

- Gelatin is the product obtained by the partial hydrolysis of collagen derived from the skin, white connective tissues & bones of animal. It can also be extracted from fish skins.
- Types of gelatin:

Type-A

Type-B



BASIC TYPES OF GELATIN

- **TYPE A**

Derived from acid treated precursor that exhibits an iso electric point at pH-9. It is manufactured mainly from pork skin.

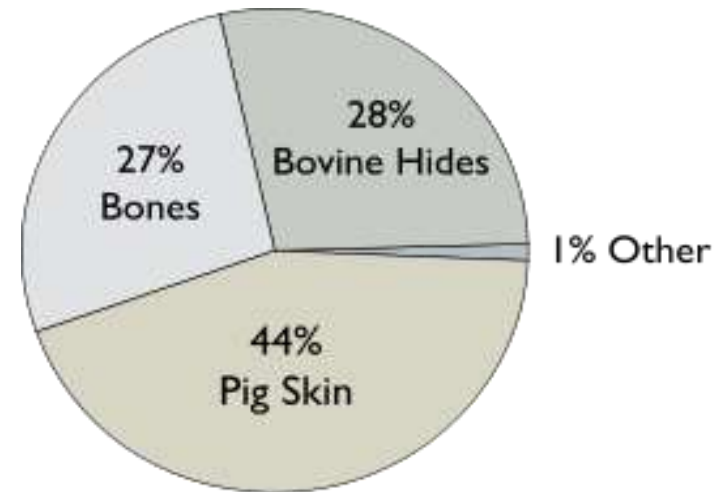
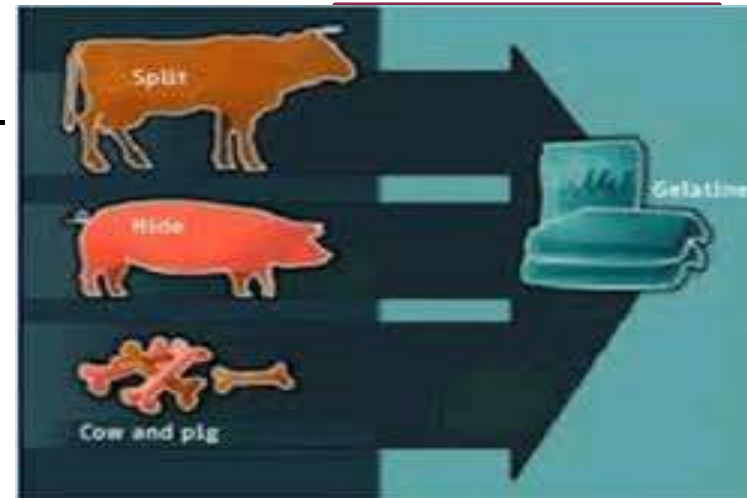
- **TYPE B**

Derived from alkali treated precursor that exhibits an iso electric point at pH-4.7. It is manufactured mainly from animal bones.



SOURCES

- Gelatin is a protein commercially made by partial hydrolysis of collagen from the skin, bones, and connective tissues of animals such as cattle, chicken, pork, fish, horses.



Materials Used in Gelatin Production

SOURCES (continued)

- In the manufacturing industry there is no distinction as to the source of gelatin present in the food products .



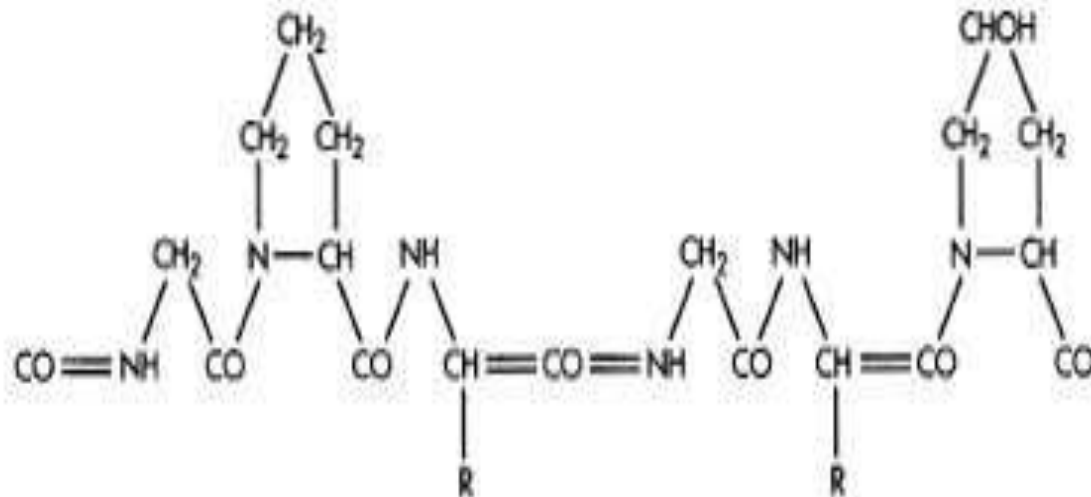
SOURCES (continued)

- Gelatin is derived by boiling animal tissues like skin, tendons, ligaments and bones with water, skimming and straining the resulting liquid, evaporating the solution at low temperature after nutrification and drying in air.



STRUCTURE

- Gelatin contains many glycine (almost 1 in 3 residues, arranged every third residues), proline and 4 hydroxy proline residues.



EXTRACTION PROCEDURE

ACIDULATION:

- Produce ossein by removing the mineral content of the bone
- Initiate the hydrolysis of collagen
- Remove non collagen impurities

WASHING:

- Rinse up to 24 hours to remove acid salts, fat and other impurities.

EXTRACTION PROCEDURE (continued)

LIMING:

- Continue to hydrolyze collagen
- Continue to remove non collagen impurities
- Convert asparagine and glutamine to their respective acids.

WASHING:

- Remove and neutralize excess lime
- Remove non collagen impurities
- Adjust pH of the ossein

EXTRACTION PROCEDURE (continued)

GELATIN EXTRACTION:

- Solubilize hydrolyzed collagen (gelatin) from the ossein

FINAL FILTRATION:

- Clarify concentration gelatin solution
- Remove additional coagulation protein and particulate
- Plate and flame pressure filters.

EXTRACTION PROCEDURE (continued)

pH ADJUSTMENT:

- Adjustment of the product pH (5-7)

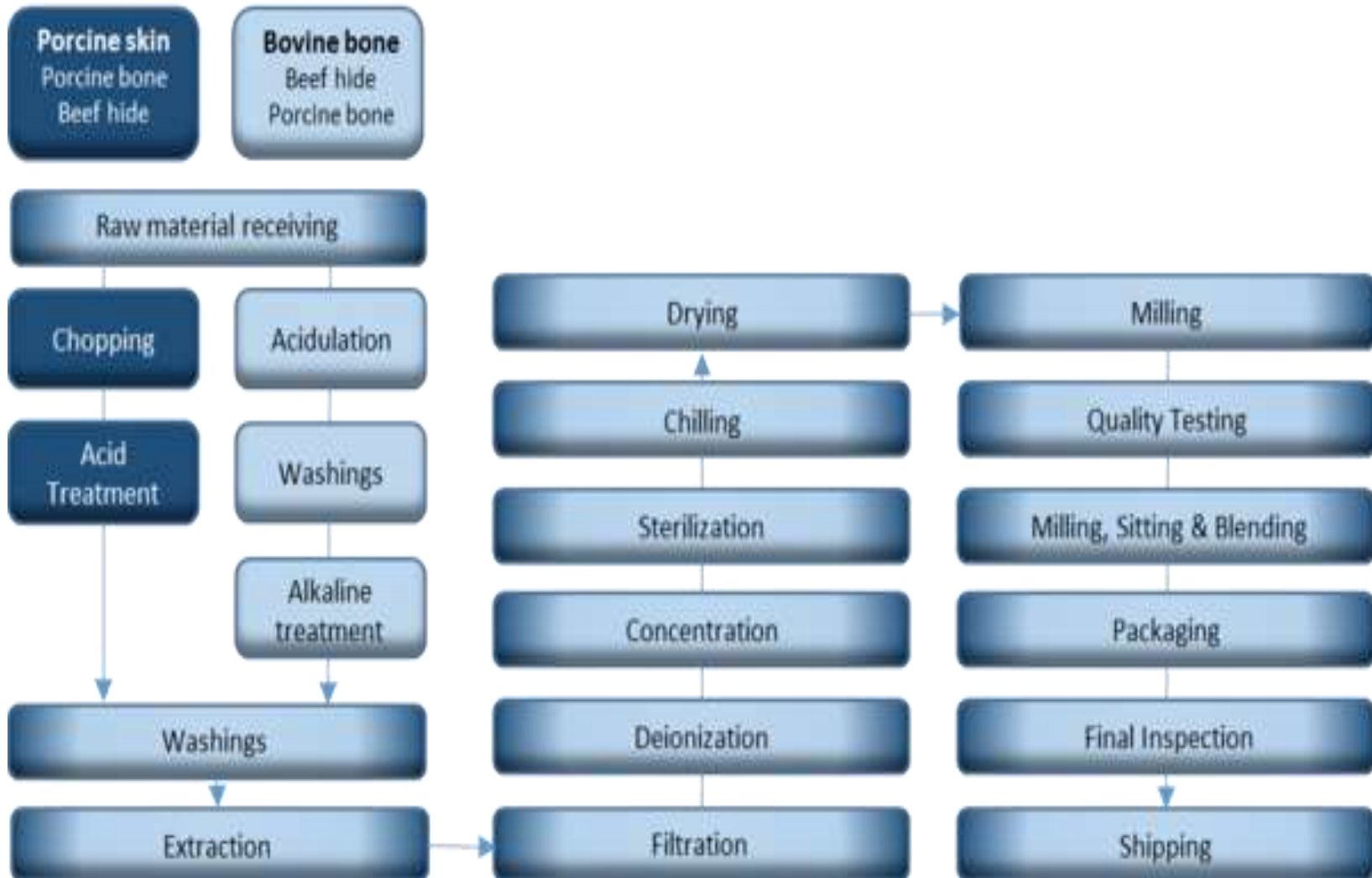
FINAL CONCENTRATION:

- Concentrate the thick gelatin liquor (25 to 50% viscosity)

STERILIZATION:

- Ensure microbiological purity product hygiene

EXTRACTION PROCEDURE (continued)



MEDICINAL USES

- Formation of hard and soft gelatin capsules
- Tablet coating
- Microencapsulation
- Suppositories
- Tablet binder
- Viscosity increasing agent for solutions and semisolids



MEDICINAL USES

(continued)

- Preparation of wound dressing
- Absorbable gelatin: sterile film, ophthalmic film, sterile sponge, sterile powder
- Gelling agent
- Pastilles and troches
- Gelatin emulsion



MEDICINAL USES (continued)

- Targeted drug delivery system
- Controlled drug delivery system





THE

END