MP Biomedicals, LLC
29525 Fountain Parkway
Solon, Ohio 44139
Telephone: 440/337-1200
Toll Free: 800/854-0530
Fax: 440/337-1180
mailto: biotech@mpbio.com
web: http://www.mpbio.com

# TECHNICAL INFORMATION

Catalog Number: 901771, 960102, 960317
**Gelatin**

**CAS #** 9000-70-8
**Source:** *Porcine skin*
**Type:** A (acid hydrolysis from collagen)
**Grade:** Food Grade (Not sold for human use; Research use only)
**Bloom:** The water binding capacity of the gelatin. The higher the bloom number, the higher the water binding capacity. Tested by preparing a 6% gel in a gelometer, which punches a plunger through the gel testing for the gel strength (the higher the strength of the gel, the higher the bloom number).[2] The bloom number is also proportional to the average molecular weight:

| Bloom Number | Average Molecular Weight |
|---|---|
| 50 - 125 (Low Bloom) | 20,000 - 25,000 |
| 175 - 225 | 40,000 - 50,000 |
| 225 - 325 | 50,000 - 100,000 |

**Physical Description:** Off-white to tan powder
**pI:** The charge on a gelatin molecule and its isoelectric point are primarily due to the carboxyl amino and guanidino groups on the side chains. Type A gelatin has 78-80 millimoles of free carboxyl groups per 100 g of protein and a pI of 7.0-9.0.[2]
**Solubility:** Below 35-40°C gelatin swells and absorbs approximately 5 to 10 times it weight of water to form a gel. Gelatin is soluble in glycerol and acetic acid, and more soluble in hot than in cold water.[1] It is practically insoluble in most organic solvents such as alcohol, chloroform, carbon disulfide, carbon tetrachloride, ether, benzene, acetone and oils.[3] Sterile solutions of gelatin stored cold are stable indefinitely, but at elevated temperatures hydrolysis or rupture of peptide bonds occurs, increasing the number of free amino groups. Gel strength and viscosity gradually weaken upon prolonged heating in solution above ~40°C; this degradation is accelerated by extremes in pH, proteolytic enzymes and bacterial action.
**Description:** Gelatin is a heterogeneous mixture of water-soluble proteins of high average molecular weights, present in collagen. The proteins are extracted by boiling skin, tendons, ligaments, bones, etc. in water.[1] Type A gelatin is derived from acid hydrolyzed tissue and Type B gelatin is derived from lime hydrolyzed tissue. Gelatin is used as a stabilizer, thickener and texturizer in foods; to inhibit crystallization in bacteriology and prepare cultures; in PCR hybridization in molecular biology; in the pharmaceutical industry as a suspending agent, encapsulating agent and tablet binder; and in veterinary applications as a plasma expander and hemostatic sponge.[1,4]
**Typical Analysis:**

| | | | |
|---|---|---|---|
| Protein | 87 g/100 g | Calories | 348 calories/100 g |
| Calcium | Only trace amounts | Iron | 25 ppm |
| Sodium | 600 ppm | Phosphorus (as $P_2O_5$) | 700 ppm |
| Moisture | 8.08% | Ash | 1% |
| Std. Plate Count | < 10/gm | E. coli | Not detected |
| Salmonella | Not detected | | |

**Typical Amino Acid Analysis (in g/100 g dry gelatin):**

| | | | |
|---|---|---|---|
| Alanine | 8.6 - 10.7 | Arginine | 8.3 - 9.1 |
| Aspartic Acid | 6.2 - 6.7 | Cystine | 0.1 |
| Glutamic Acid | 11.3 - 11.7 | Glycine | 26.4 - 30.5 |
| Histidine | 0.85 - 1.0 | Hydroxylysine | 1.04 |
| Hydroxyproline | 13.5 | Isoleucine | 1.36 |
| Leucine | 3.1 - 3.34 | Lysine | 4.1 - 5.2 |
| Methionine | 0.8 - 0.92 | Phenylalanine | 2.1 - 2.56 |
| Proline | 16.2 - 18.0 | Serine | 2.9 - 4.13 |

| | | | |
|---|---|---|---|
| Threonine | 2.2 | Tryptophan | 1.5 |
| Tyrosine | 0.44 - 0.91 | Valine | 2.5 - 2.8 |

**Availability:**

| Catalog Number | Description | Size |
|---|---|---|
| 901771 | Gelatin, 225 Bloom | 100 g<br>500 g<br>1 kg |
| 960102 | Gelatin, 50 Bloom, flaked | 100 g<br>500 g<br>1 kg |
| 960317 | Gelatin, 100 Bloom | 100 g<br>500 g<br>1 kg |

**References:**


– *Merck Index*, **12th Ed.**, No. 4388.
– *Standard Methods for the Sampling and Testing of Gelatins*, Gelatin Manufacturers Institute of America, Inc., 501 fifth Ave., Room 1015, New York, NY.
– *Martindale, The Extra Pharmacopeia***, 29th Ed.,** p. 818, Reynolds, J.E.F. (ed.), The Pharmaceutical Press, London (1989).
– Dieffenbach, C. and Dveksler, G.S. (eds.), *PCR Primer: A Laboratory Manual*, Cold Spring Harbor, NY (1995).