



# KENNEY & ROSS LIMITED

6493 SHORE ROAD, PORT SAXON, NOVA SCOTIA CANADA B0T 1W0

Phone (902) 637-2616

[www.kenneyandross.com](http://www.kenneyandross.com)

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Product Name	HiPure Liquid Gelatin (NT)		
Material No.	N/A		
Product Ref.	N/A	CAS No.	9000-70-8
Effective Date	May 1, 2022	EC No.	232-554-6

## PRODUCT DESCRIPTION:

Fish Gelatin is manufactured by hydrolysis of collagen which is a principal protein found in skin and bones. Kenney & Ross Ltd fish gelatin is produced from the skins of deep-water fish such as wild caught cod, haddock and pollock. Fish gelatin share similar characteristics to animal gelatin even though animal gelatin is extracted from bovine or porcine skins. Our fish skin source and manufacturing comply with CFIA, EU, EP, USP, JP, Kosher, and Halal standards.

HiPure Liquid Gelatin is a specifically purified gelatin with an average molecular weight of 60,000. HiPure Liquid Gelatin has lower amounts of proline and hydroxyproline, the amino acids responsible for hydrogen bonding in gelatin. This allows water solutions of our gelatin to remain liquid at room temperature, even in high concentrations. As an alternative to regular gelatin, HiPure Liquid Gelatin can be used for silver emulsions, for subbing films, as a wash off coating in graphic arts, and for dichromated coatings used in photoresists.

HiPure Liquid Gelatin is very suitable for use in photographic applications. It is deionized in the manufacturing process to remove all salts and the low molecular weight organic impurities. This gives a very pure gelatin with low ash. It should be noted that HiPure has no cysteine and very little methionine in its composition, so it is very low in sulphur. HiPure Liquid Gelatin is nontoxic because it contains only pure gelatin and a combination of nontoxic preservatives. Since it is a protein material, further dilution with water will require additional preservative to prevent bacterial growth.

## PROPERTIES:

HiPure Liquid Gelatin is a protein molecule consisting of a complex chain of 20 amino acids. It is amphoteric in nature and offers a variety of reactive end groups, including hydroxyl (OH), carboxyl (COOH), and amino end groups (NH<sub>2</sub>). Reactivity will depend on the pH of the gelatin solution with amino end groups reacting on the alkaline side, and carboxyl end groups reacting on the acid side. Large amounts of acids and bases should be avoided, as the gelatin will degrade in time at pH below 3.0 or above 9.0.

Its is classified as a teleostean gelatin with a different proportion of basic amino acids compared to animal gelatin. A notable difference is the lower amount of proline and hydroxyproline in HiPure. These amino acids are responsible for the gel characteristic normally attributed to gelatin. The lack of them in HiPure is its unique advantage. HiPure also has a higher proportion of serine, a hydroxy functional amino acid. This contributes to the



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greater adhesion it shows to many substrates. The small variations in the other amino acids may offer advantages for specific applications but for the most part provide similar characteristics to both types of gelatin.

Although HiPure Liquid Gelatin is very water soluble, it can be made insoluble by the addition of polyvalent ion salts such as aluminum sulfate, ferric sulfate, or chrome alum. Acid chromates will also insolubilize the gelatin as the chromate will oxidize it and be reduced to trivalent chromium. Formaldehyde, gluteraldehyde, and glyoxal will likewise react with gelatin to insolubilize it.

Dry films of HiPure are hard and somewhat brittle. If a flexible film is desired, it can be plasticized with a humectant such as glycerin or a glycol. Use 5 - 10% based on dry weight.

Although dried films are insoluble in organic solvents, the liquid gelatin will tolerate certain water miscible solvents. Here are the toleration levels of various solvents in 100 parts of 45% Liquid Gelatin solution:

Solvent	Tolerable level
Ethyl Alcohol	50 parts
Acetone	25 parts
Methyl cellosve	95 parts
Diemethyl formamide	110 parts

Films cast from mixtures are generally clear. When mixing emulsions with gelatin, special care must be taken to avoid undue localized concentrations which might tend to coagulate the emulsion. If water is to be added to the formula, dilution of the emulsion or latex before adding to the gelatin is suggested.



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## APPLICATION:

As an alternative to regular gelatin, HiPure Liquid Gelatin can be used for silver emulsions, for subbing films, as a wash off coating in graphic arts, and for dichromated coatings used in photoresists. It is also an excellent material for use in formulating leather finishes, or it can be used as a substantive protein in personal care products.

Features of HiPure Liquid Gelatin:

- Completely water soluble.
- Acts as a protective colloid to suspend small particles or monomers in solution.
- Excellent adhesion to metal, rubber, glass, leather, cork, wood and paper.
- Insoluble in organic solvents.
- Coatings can be made water resistant and insoluble in water.
- Dries to a hard, smooth finish.
- Coatings will accept water soluble dyes.
- Compatible with a wide variety of water soluble monomers.

HiPure Liquid Gelatin can be combined with animal gelatin to lower the gel or melting point of the latter, and to make the animal gelatin more water soluble. Water solutions of animal gelatin will normally gel at 30-35°C. This can be reduced to as low as 15°C with appropriate amounts of HiPure Liquid Gelatin. The combination will have excellent film forming properties.

## Photographic Coatings

HiPure Liquid Gelatin is very suitable for use in photographic applications. It is deionized in the manufacturing process to remove all salts and the low molecular weight organic impurities. This gives a very pure gelatin with low ash. It should be noted that HiPure has no cysteine and very little methionine in its composition, so it is very low in sulphur.

It's greatest advantage for photographic coatings is the fact that water solutions remain flowable liquids at room temperature which eliminates many of the handling problems associated with gelatin. Our liquid gelatin eliminates the need for heated coating equipment and its critical temperature and viscosity control. It mixes quickly into water with simple stirring and eliminates the problem of undissolved gelatin which cause coating flaws. HiPure also allows higher solid solutions to be formulated with the inherent advantage of faster drying time. No other gelatin is as easy to use in photographic coatings as HiPure Liquid Gelatin.



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SPECIFICATION	
Color	Light Amber
Appearance	Clear Liquid
Solids	44 – 46%
Viscosity	11000 - 15000 cps
Viscosity in 10% Soln	9 - 10 cSt
Turbidity	As is
Conductivity	As is
pH	As is
TPC	<10000 cfu/g
Yeast & Mold	<100 cfu/g
C. perfringens	Absent /10g
Salmonella	Negative /25g
Enterobacteriaceae	<10 cfu/g
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Preservatives	Methy / Propyl para-Hydroxybenzoates
Bloom	0 g

## SAFETY & HANDLING:

HiPure Liquid Gelatin is nontoxic because it contains only pure gelatin and a combination of nontoxic preservatives. Since it is a protein material, further dilution with water will require additional preservative to prevent bacterial attack.

## SOLVENTS:

Thinning – Water  
Clean up – water



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## PACKAGE SIZES:

5 gallon pails  
Drums