

Light Mineral Oil for Embryo Culture



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The terms “mineral oil” and “paraffin oil” refer to liquid solutions of hydrocarbons which consist of alkanes- polymers of carbon and hydrogen- having the general formula C_nH_{2n+2} . Technically, the term paraffin refers to linear alkane molecules, while branched chain alkanes are defined as isoparaffins. The term “mineral oil” is a more general term for alkanes which may include branched and cyclic alkanes as well. Mineral oils are highly purified by-products of the distillation of petroleum, and have the properties of being immiscible with aqueous solutions, having a significantly lighter density than water, and being non-reactive. This makes them ideal for use in micro-drop cell cultures, preventing evaporation of the aqueous phase, and providing an insulation against rapid changes in pH when the atmospheric (i.e. % CO_2) conditions change.

The quality of the mineral or paraffin oils supplied by different companies for use in embryo culture cannot be defined by the terms used by the manufacturers or suppliers to describe the product. The terms “mineral oil” and “paraffin oil” are often considered synonymous by the manufacturers, as well as by the various institutions providing information about the chemicals and drugs used in the manufacture of pharmaceutical products. The references quoted in Table 1 demonstrate this point clearly.

Table 1

Reference	Quote
US Pharmacopeia	Light Mineral Oil is a purified mixture of liquid hydrocarbons obtained from petroleum. Specific gravity 0.818-0.880.
British Pharmacopeia	Light liquid paraffin is a purified mixture of liquid saturated hydrocarbons obtained from petroleum.
Wikipedia	Liquid paraffin, or mineral oil, is a mixture of heavier alkanes, and has a number of names, including nujol, adepsine oil, alboline, blymol, medicinal paraffin, saxol, or USP mineral oil. It has a density of around 0.8 g/cm ³ .

In addition, the term “pharmaceutical grade” does not necessarily imply that the “oil” is of the highest purity or quality. Certain mineral oils utilized in analytical chemistry may be more highly purified than those manufactured as a “bulk pharmaceutical chemical”.

The term “light mineral oil” is relevant to the use of mineral oil for the culture of embryos. The term “light” refers to the density and viscosity of the oil, which is defined by the average chain length of the hydrocarbon molecules in the oil. Embryologists have found that “light mineral oil” is preferable to the more dense and viscous mineral oils that are also available from the manufacturers of mineral oils.

Irvine Scientific’s light mineral oil for embryo culture is used as an overlay to cover small volumes of media to prevent evaporation and changes in pH. Our oil is sterile filtered and aseptically processed to provide the highest quality oil available.

- Ready to use; washing not required
- Certificate of Analysis available with each lot
- Shelf life of 2 years from the date of manufacture

