



EOLANE

Pharmacopeia-grade
paraffin oils



TotalEnergies

  specialfluids.totalenergies.com



Market insights

Animal vaccination is used both to protect them from contracting certain diseases but also to prevent transmission of diseases to people. A vaccine is a biological preparation aiming to improve immunity to a specific disease. It reduces the risks of illness while retaining the capacity to induce a favorable immune response.

Composition of vaccines

Vaccines comprise an antigen, the microorganism, an adjuvant which increases the immune response and preservatives which prevent other chemical reactions from occurring.

The dead or inactivated microorganisms are obtained from:

- ▶ inactivated bacteria or viruses for flu, cholera or polio (inactivated vaccines).
- ▶ altered bacteria or viruses to avoid causing the illness for yellow fever, measles, rubella and mumps (live attenuated vaccines).
- ▶ toxic compounds triggering the illness, but which are inactivated, for tetanus and diphtheria (anatoxin vaccines).
- ▶ protein subunits or fragments of inactivated microorganisms for hepatitis A and B (component vaccines).

The adjuvant helps to develop the immune response of the vaccine with having any antigenic property itself. It also extends the length of protection, enables the vaccination to be boosted and allows antigen doses to be reduced.



Choice of adjuvants

Choosing an adjuvant involves making a compromise between efficacy and toxicity. Used for over 70 years, adjuvants include various families of compounds such as microbial products, mineral salts (including aluminum salts), emulsions, microparticles and liposomes. Emulsions are primarily used for inactivated and anatoxin vaccines and may contain mineral oils.

Emulsions improve efficacy and have an immunostimulant activity. The mechanism of action of oily adjuvant-based vaccines includes the formation of a deposit on the injection site which protects the antigen from enzymatic breakdown and allows its slow release and the stimulation of antibody-producing plasma cells.

The type of oil (mineral, vegetable or synthetic) can influence the properties of the vaccine (stability, viscosity, injectability, etc.).





High purity and quality products

In veterinary use, mineral oils are mainly used in the preparation of water-in-oil emulsions with an oil content of up to 80%.

- ▶ The mineral oils must meet the purity criteria defined by the pharmacopeia.
- ▶ They must have the most consistent composition possible as an increase in the content of naphthenic compounds for example, reduces the adjuvant's efficacy.
- ▶ They must have the lowest possible viscosity for a same carbon chain length.

Eolane, Pharmacopeia-grade paraffin oils

The Eolane mineral oil range is dedicated to the development of adjuvants with enhanced performances. To strike the best balance between efficacy and viscosity, TotalEnergies has developed extremely pure products with low naphthenic compound content.

- ▶ Highly purified range (extremely low PAH content required by pharmacopeia)
- ▶ Narrow carbon distribution, low molecular weight substance
- ▶ Uniform dispersion of micron-size droplets of oil
- ▶ Improved emulsion stability
- ▶ Reduced emulsion viscosity
- ▶ Reduced adverse side effects



The Special Fluids division of TotalEnergies: A global network with a local touch

A RECOGNISED GLOBAL LEADER

HEALTH AND SAFETY ARE THE CORNERSTONES OF OUR PROCESSES



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two in France, one in Belgium, and a technical centre in India

ANIMAL VACCINES



» HIGH PERFORMANCE RANGE

- ✓ The formulation, efficacy and safety of a vaccine partially depend on the quality of the adjuvants used. As mineral oils can play a very important role, attention is paid to purity, reproducibility and viscosity criteria.
- ✓ The Eolane mineral oil range is dedicated to the development of adjuvants with enhanced performances to meet these criteria.



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