Toxicity of multilayer plastics for boar semen
Rudolf Großfeld, Dra. Carmen de Alba Romero, Dr. Monika Esch

At present, in the industry of artificial insemination, plastic packaging and plastic materials are one of the most widely used alternatives for boar semen storage. This type of material, like any other used in the swine IA, must assure that the package meets the functions for which it was designed, in this case, hold, protect and maintain the semen. The proper selection of raw materials and the right design makes plastic containers highly hygienic and safe. The main requirement to be met by packaging, intended to come into contact with semen, is to exert no negative effect on the fertility of the spermatic cells. For that reason, it is needed to perform a series of controls to ensure that the product maintains its properties.

The European Pharmacopoeia establishes the controls for plastics to identify the content in certain additives or heavy metals that are classified as toxic; in some cases, the allowed limit of these substances is established. Plastic product must be inert since there is an interaction with the content and the environment conditions. One process that can occur is the migration of substances or components from the plastic container to the product inside, altering its quality or potentially be contaminated with toxic.

The materials used for packaging for boar semen production differs if the package is tube type (only a single layer of plastic, semi-flexible container) or bag type (several layers of plastic, flexible packaging). The flexibility of the plastic is achieved by adding plasticizers; the most widely used are phthalate esters. These additives may have an effect on sperm cells and living organisms in general. EU classified phthalates as potentially teratogenic substances and cause impaired fertility.

Minitube International tests all materials which come into direct contact with semen. Split ejaculate samples are exposed to the surface of test materials and incubated. Standard sperm functionality is evaluated after incubation. All products produced by Minitube International, which have been successfully tested are marked with the SpermSafe label which is clearly visible on the original shipping box or bag in which the product is packed.