



Phthalates in Medical Applications – Proven Life Savers

Soft PVC in medical devices saves thousands of lives and increases the comfort and safety of millions of patients every year. No other material meets all the vital performance qualities demanded by health professionals and at such affordable prices. Phthalates confer the flexibility and softness that makes them the first choice among healthcare professionals around the world.

Designed to save lives

Medical devices are crucial to the high standards of modern healthcare that we now take for granted. The many thousand different types of devices which exist today are advanced modern products that have to respond to highly specific performance requirements. PVC softened with phthalates is the only material that can guarantee all of these.

Basic, indispensable requirements for the vast majority of medical devices are flexibility and strength. Soft PVC provides both of these. PVC catheters, for example, need to be soft to enter below the skin but also tough to work inside and outside of the body. Oxygen masks have to be firm but not harm facial skin.

Life-saving operations, such as open-heart surgery or treatment of babies, rely on



soft PVC catheters and tubes because they do not 'kink' and so ensure the uninterrupted flow of fluids. Their especially smooth inner surface prevents blood clots or other disruptions.

Soft PVC can easily be sterilised, cutting down infections which could

complicate or undermine treatment. Its transparency reduces potentially life-threatening mistakes with medicines and allows healthcare workers to see immediately if a fluid is running low. Labels can be printed directly onto PVC and cannot be worn off, thus resulting in increased safety.



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Blood bags

Blood and other bags for intravenous solutions are crucial to modern healthcare. Soft PVC is the clear material of choice for these and is used in hospitals for millions of these devices every day. Crucially for this application, no other material except PVC retains its qualities across such a diverse range of conditions without loss of flexibility or strength. These extremes range from high temperatures, which are essential for sterilisation, to weeks of low temperatures that are critical for cold storage.

Blood itself is a key but scarce resource in most hospitals. Di-(2-ethylhexyl)phthalate (DEHP) – the main phthalate used in medical devices – has a further and unique role in blood bags because it actually helps to prolong the life of the blood itself. Without these products, blood supplies would be substantially reduced.

Rapid and effective emergency treatment of accident victims depends on PVC bags. They are light but almost impossible to tear, easy to handle and occupy less space than traditional alternatives.

As it is chemically inert and does not react in any way, manufacturers use soft PVC for containers designed to be worn on the body, such as urine and colostomy bags. These provide the further benefits to people of comfort, being noiseless and preventing odours from escaping.

From a practical point of view, PVC bags are more convenient than glass. Not only are they easier to handle and store, but they are also safer. They cannot break and cause injuries, of particular importance in emergencies outside the hospital, for example in road accidents.

An important advantage is that soft PVC intravenous bags can be pressed together by hand for a forced infusion.

PVC bags can also be put in a centrifuge to separate blood components from each other.

Cost effective

If it were not for soft PVC, health care would be much more expensive, possibly prohibitively so for some groups in society. To ensure vital hygiene and to prevent cross infections almost all medical devices are designed

for one-way use only. This makes price crucial at a time when medical budgets are under increasing pressure. PVC plasticised with phthalates is the only material that is able to guarantee all the in-service qualities demanded by healthcare professionals while remaining affordable.

After use, the disposal of medical devices by appropriate means presents minimal environmental impact.

DEHP specified by regulators

European healthcare regulators clearly recognise the role of phthalates. The three European Union Directives relating to medical devices stipulate rigorous and exhaustive testing of materials and govern the materials that can be employed. Di-(2-ethylhexyl) phthalate (DEHP) – the member of the phthalate family used in almost all PVC healthcare applications - is actually specified by the European Pharmacopoeia as the plasticiser for blood bags.

The European Council for Plasticisers and Intermediates represents an industry which is accountable and is committed to the global chemical industry initiative 'Responsible Care'.

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