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Center for Advanced Technology and Innovation

TIME RELEASE HEALS ALL WOUNDS

Improving biomedical practice through adhesives and hydrogel technologies

US Patent No. 5104926, Issued 4/14/92, Pressure sensitive adhesive compositions and elements made therefrom
US Patent No. 5106914, Issued 4/21/92, Pressure sensitive adhesive compositions and elements made therefrom
US Patent No. 5239017, Issued 8/24/93, Continuous process for the production of pressure sensitive adhesive mass compositions and articles made therefrom
US Patent No. 6583225, Issued 6/24/03, Polymeric Hydrogels

This patented technology deals with bio adhesives and hydrogel technologies that deliver a unique timed-detachment feature.

Patent Details and Technical Content

This adhesive technology exhibits the highly desirable property of resisting erosion while maintaining a secure, non-irritating adherence to the skin. It can be prepared as a thin, clear, tacky layer on an inert substrate, which makes it particularly useful in biomedical products. Swelling and tackiness can be controlled by variance and composition. When swollen to 300-500% of initial volume (which occurs in pH 7 buffer at 5 to 20 hours after immersion) the polymer loses its bio-adhesive properties; in some cases completely. This action delivers the unique timed-detachment feature. Polymers of this nature are typically non-sensitizing and non-irritating.

The paste can then be formed into the desired shape and heated for a period of time and temperature sufficient to form a gel. Upon cooling, a formed adhesive mass or element is obtained in the desired shape suitable for medical and other end uses.



Business Benefits

Compositions used in medical use, particularly ostomy applications, require resistance to erosion caused by moisture from biological fluids. This technology demonstrates good adherence to the skin and remains non-irritating. It is also suitable for a variety of industrial and medical applications, as they have the ability to shape and conform to the contours of a given surface. These compositions are also simple to prepare.

Summary and Recommendations

This patent technology is suitable for large producers of medical products and crosses over into several industry applications including: wound care, ostomy appliances, oral drug delivery systems, cosmetic and personal care and applications requiring timed release adhesion.