

Our company KJK (Japanese name: **K**ankyo **J**yoka **K**enkyusyo), founded in 1999, is the first company certified by the public assistance system of the National Institutes for Quantum and Radiological Science and Technology (Previously known as the Japan Atomic Energy Research Institute). We have manufactured various functional materials on the basis of the invention and findings of radiation-induced graft polymerization from the national institutes and the Tokyo/Chiba universities. Radiation-induced grafting enables the introduction of innovative functionality into starting polymeric materials while maintaining their shapes and physical/chemical strength. Recently, our research findings have been published in the book: “Innovative Polymeric Adsorbents” (K. Saito, K. Fujiwara, and K. Sugo) by Springer Nature Singapore Pte Ltd., Singapore in 2018.

About radiation-induced graft polymerization

Radiation-induced graft polymerization is a powerful technique for modifying the existing polymeric materials. An analogy between grafting performed by a gardener (a) and that by a chemist (b) is illustrated in Figure 1.

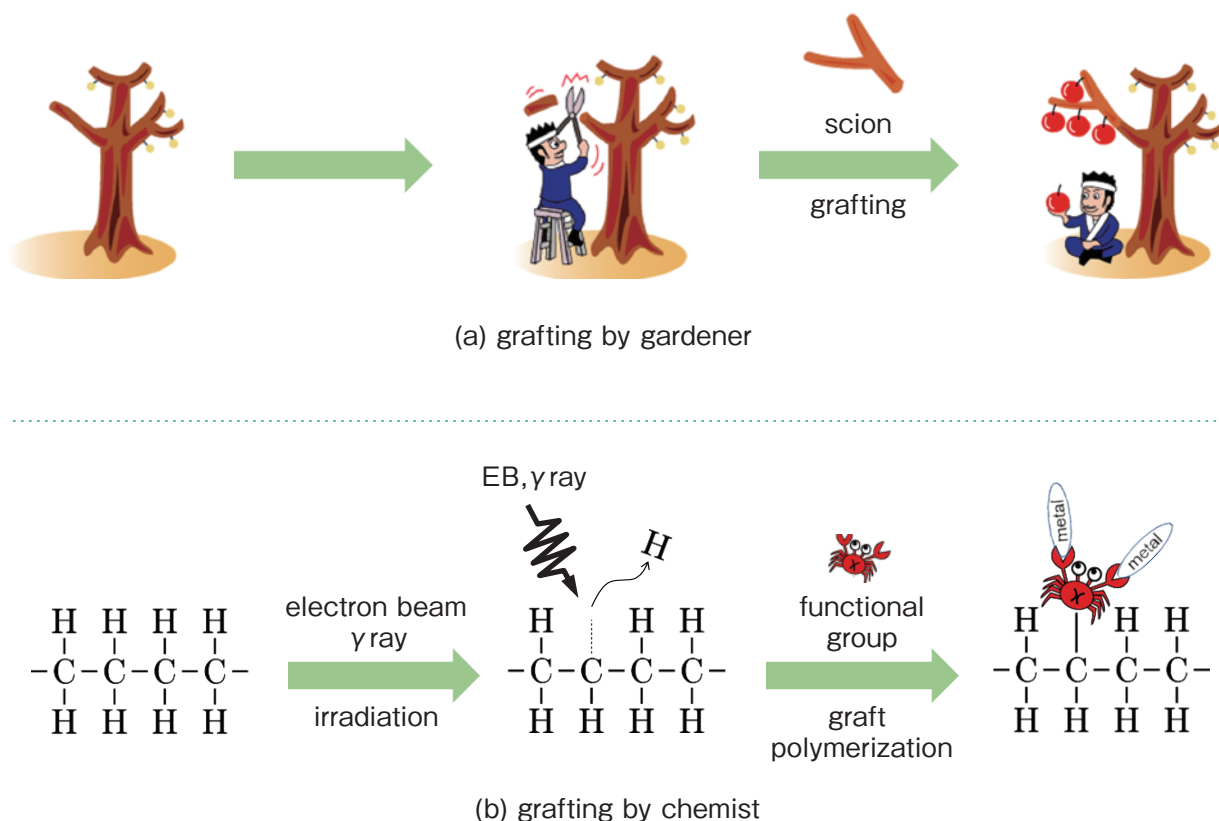


Figure 1 Principle of radiation-induced graft polymerization

A tree that is resistant to severe climate and poor soil has few fruits on its branches. The gardener creates a grafting site by cutting a branch with scissors. Then, he grafts another branch (scion) that is capable of producing succulent fruit. Similarly, chemists can produce radicals by irradiating a trunk polymer with electron beams and gamma rays. Then, a polymer branch with functional capabilities is grafted onto the trunk polymer.

Grafting enables role allotment in polymeric materials. The role of the trunk polymer is to provide an appropriate practical shape and to maintain chemical-resistant stability, whereas the branch polymer exhibits various functionalities such as separation and catalytic reaction.

Polymeric materials prepared by radiation-induced grafting:

- are molded into various shapes such as braids, nonwoven fabrics, and wound filters
- exhibit high adsorption rate and capacity
- show durability for repeated adsorption and elution
- are reduced in volume by incineration

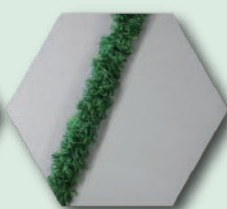
Products of radiation-induced graft polymerization can be applied to:

- removal of hazardous and undesirable components
- collection and recovery of valuable and precious components
- purification of rare-earth metals and pharmaceuticals

We can offer various shapes of fibers such as wound filters, braids, nonwoven fabrics, cloth, powder-like fibers and nets.



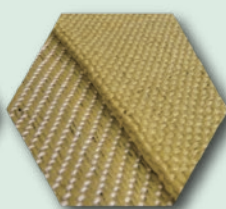
wound
filter



braid



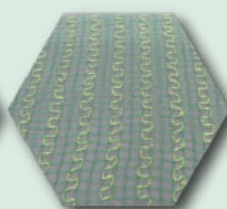
nonwoven
fabric



cloth



powder-like
fiber



net

Contact us

KJK Co., Ltd. (Japanese name: **K**ankyo **J**yoka **K**enkyusyo)

4th Floor, 58-1 Yashima-cho, Takasaki, Gunma 370-0849 JAPAN

Tel: +81-27-322-1911 Fax: +81-27-322-1912 Email: kjk@kjk-jp.com