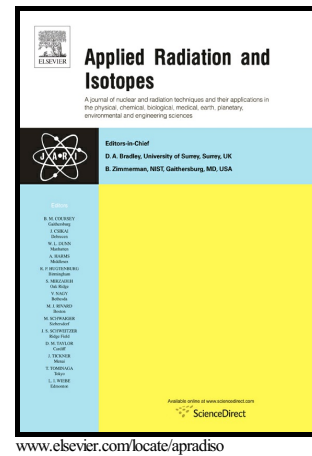


# Author's Accepted Manuscript

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**Diffusion lengths and partition coefficients of  $^{131m}\text{Xe}$  and  $^{85}\text{Kr}$  in Makrofol N and Makrofol DE polycarbonates.**

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**Abstract**

This work presents the results of an experimental study of the Makrofol<sup>®</sup> N and Makrofol<sup>®</sup> DE polycarbonate foils absorption properties of  $^{85}\text{Kr}$  and  $^{131m}\text{Xe}$ . The diffusion lengths of  $^{85}\text{Kr}$  and  $^{131m}\text{Xe}$  in both types of foils are determined. The partition coefficients of  $^{85}\text{Kr}$  from air and water and that of  $^{131m}\text{Xe}$  from air in Makrofol<sup>®</sup> N are determined. The partition coefficients of  $^{85}\text{Kr}$  from water and  $^{131m}\text{Xe}$  from air in Makrofol<sup>®</sup> DE are also determined. The parameters are determined for  $T=22\text{ }^{\circ}\text{C}$  and allow for the full characterisation of sorption and desorption of  $^{85}\text{Kr}$  and  $^{131m}\text{Xe}$  in the foils at this temperature. The results from this study highlight the remarkable absorption ability of Makrofol<sup>®</sup> and especially of the Makrofol<sup>®</sup> N foil and show that it surpasses the Makrofol DE<sup>®</sup> foil not only as a Rn absorber, but also as Kr and Xe absorber.

**Keywords:** Polycarbonate,  $^{131m}\text{Xe}$ ,  $^{85}\text{Kr}$ , Diffusion, LSC

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