

1086-VK-1167      **Michelle Craddock\*** ([michelle.craddock@usma.edu](mailto:michelle.craddock@usma.edu)), Department of Mathematical Sciences,  
646 Swift Road, Thayer 253, West Point, NY 10996. *Geometric Properties for the Fremlin and  
Wittstock Tensor Products of Banach Lattices.*

Let  $X$  be a Banach lattice and let  $1 < p, q < \infty$  such that  $1/p + 1/q = 1$ . Then  $\ell_p \hat{\otimes}_F X$  (respectively,  $\ell_p \tilde{\otimes}_i X$ ), the Fremlin projective (respectively, the Wittstock injective) tensor product of  $\ell_p$  and  $X$ , is a Grothendieck space if and only if  $X$  is a Grothendieck space and each positive operator from  $\ell_p$  (respectively, from  $\ell_q$ ) to  $X^*$  (respectively, to  $X^{**}$ ) is compact. (Received September 19, 2012)