962-47-746 **Qingying Bu*** (qbu@mcs.kent.edu), Department of Mathematics, Kent State University, Kent, OH 44242, and **Joseph Diestel**, Department of Mathematics, Kent State University, Kent, OH 44242. *The Littlewood-Orlicz Operator Ideal.*

Let X and Y be Banach spaces. A Banach space operator $u : X \longrightarrow Y$ is called a Littlewood-Orlicz (LO) operator if $(I \otimes u)(\ell_1 \overset{\vee}{\otimes} X) \subseteq \ell_2 \overset{\wedge}{\otimes} Y$, where $I : \ell_1 \longrightarrow \ell_2$ is the inclusion map. Let $LO(X,Y)$ denote the space of all LO operators from X to Y, and let $\|u\|_{LO}$ denote the Littlewood-Orlicz norm $\|I \otimes u\|_{\ell_1 \overset{\vee}{\otimes} X) \to \ell_2 \overset{\wedge}{\otimes} Y}$. Then we have the following main results. 1. $LO(\cdot,\cdot)$ is an operator ideal. 2. Each 1-factorable operator on Banach spaces is LO. 3. Hilbert-Schmidt operators on Hilbert spaces coincide with LO operators. 4. Let K be a Hausdorff compact metric space. Then each LO operator from $C(K)$ to a Banach space is weakly compact. 5. Each LO operator from a Banach space to a Hilbert space is absolutely 2-summing. (Received September 26, 2000)