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Regularity in the category of lattice-valued convergence spaces is defined and studied. This definition is equivalent to that given by W. Gähler in terms of a "compression operator." Given certain restrictions on the lattice, sufficient conditions are listed to ensure that an object possesses a "weakly regular" compactification. Moreover, the closure operator in a compact "symmetric" lattice-valued convergence space is idempotent. (Received January 06, 2011)