Jahnke, *t-Henselian Fields*

In the article "Model-theoretic methods in the theory of topological fields", Prestel and Ziegler introduce the notion of t-henselianity for V-topological fields and show that every omega-saturated t-henselian field admits a nontrivial henselian valuation. Moreover, they give an example that this may fail without saturation, even when the base field is neither separably closed nor real closed. In "Algebraic number fields elementarily determined by their absolute Galois group", Prestel gives a simple description in terms of polynomials of the V-topology generated by any nontrivial henselian valuation on a non-separably closed field. In particular, t-henselianity is preserved under elementary equivalence in the language of rings. Building on these classical results, I will discuss which properties of a henselian valued field are preserved under elementary equivalence in the language of rings.