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### Universal Self-Adhesive Cements - Degree of Conversion and Contact Angle

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**Objectives** The aim was to investigate the influence of curing mode (dual or self-cure) and storage time (24 h and 60 d storage) on the degree of conversion and contact angle of universal self-adhesive resin cements.

**Methods** The universal self-adhesive resin cements RelyX Universal (RXU, 3M) and G-CEM ONE (GCO, GC) were investigated. The conventional resin-luting composite Variolink Esthetic DC (VLE, Ivoclar) served as the control. For the degree of conversion (DC) and contact angle (CA), cylindrical samples (diameter x height, 8 mm x 2 mm) were prepared from each material under dual (n=6 per material, 20s light-curing at a minimum of 870mW/cm<sup>2</sup>) or self-curing (n=6 per material) and stored in artificial saliva at 37°. After 24h and 60d of storage, the degree of conversion was measured by FTIR-ATR spectrometry (IRAffinity-1S with QATR-S, Shimadzu), and the contact angle using the sessile drop method (DSA 30, Krüss).

**Results** One-way ANOVA did not reveal statistically significant differences in DC between RXU (24h<sub>self-cure</sub> 70,44±9,09%, 60d<sub>self-cure</sub> 74,08±7,20%) and GCO (24h<sub>self-cure</sub> 64,92±3,55%, 60d<sub>self-cure</sub> 71,18±2,50%) in self-cure after 24h and 60d (p>0.05). In dual-cure, RXU (24h<sub>dual-cure</sub> 79,44±2,85%, 60d<sub>dual-cure</sub> 81,12±3,24%) had a significantly higher DC than GCO (24h<sub>dual-cure</sub> 62,93±9,86%, 60d<sub>dual-cure</sub> 71,37±4,41%) and VLE (24h<sub>dual-cure</sub> 57,15±1,36%, 60d<sub>dual-cure</sub> 56,78±2,96%), independently of the storage time (p < 0.05). One-way ANOVA showed that after 24h, regardless of the curing mode, VLE had significantly lower CA compared to RXU and GCO (p<0.05). After 60d, independently of curing mode, the CA of RXU and GCO decreased and were significantly lower than those of VLE (p<0.05, table 1).

**Conclusions** The initiator systems of the universal self-adhesive resin cements under investigation are capable of sufficient polymerisation in both curing modes. The decrease in CA after storage can be a result of increased hydrophilicity, which has to be further investigated.