

## Analysis Report AM10115/17

### Examination of a polysilazane-based coating for mobile phone displays

Client: Microdiamant AG  
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Switzerland

Contractor: Fraunhofer-Institut für Silicatforschung ISC  
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Germany

#### Short summary of selected results

In the scope of the analysis order AM10115/17, various HIPROTEC formulations on coated clear glass panes in comparison with untreated clear glass panes and commercially available mobile phone displays (Gorilla Glass, 4th Generation) were examined. From the results recorded in analysis report AM10115/17 from 19.01.2018, the following statements can be derived:

The highest measured value of Vickers hardness with the samples treated with HIPROTEC was HV2744. The untreated clear glass pane exhibited a value of HV1314. Accordingly, an increase in the hardness resulting from the coating with HIPROTEC was shown.

The commercially available mobile phone display examined in the scope of the analysis (Gorilla Glass, 4th generation) had a Vickers hardness of HV931.

The measurement of the abrasion value in accordance with DIN EN ISO 7784-2 (Taber Abraser) with an uncoated clear glass pane indicated a value of 2.1 % after 100 cycles. The lowest abrasion value measured on a clear glass pane coated with HIPROTEC was 0.7 %, which was a reduction in abrasion by a third.

The complete analysis results can be found in the analysis report AM10115/17 from 19.01.2018.



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#### Final remarks

- The analyses were carried out by qualified employees using up-to-date analysis devices. Nevertheless, we are not able to provide a guarantee for the correctness of the drawn conclusions.
- The results only refer to the provided and tested samples.
- Sample taking and shipping of the samples to the ZAA took place on the responsibility of the client.
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## Analysis Report AM10025/18

### Determination of the hardness of coated mobile phone displays

Client: Microdiamant AG  
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### Short summary of selected results

In the scope of the analysis order AM10025/18, with HIPROTEC coated mobile phone displays in comparison with uncoated mobile phone displays were examined. From the results recorded in analysis report AM10025/18 from 27.03.2018, the following excerpt is given:

Sample	Description	Hardness HM [N/mm <sup>2</sup> ]	Vickers Hardness HV
AM10025/18 P01	Uncoated Reference	3342,5	569,2
AM10025/18 P02	HIPROTEC, lot 171124	7726,2	3623,0

Thus, the sample coated with HIPROTEC exhibited a hardness HM that was approximately 2.3 times higher than the one of the uncoated reference sample. Looking at the Vickers hardness, the value was approximately 6.4 times higher than the one of the uncoated reference sample.

The complete analysis results can be found in the analysis report AM10025/18 from 27.03.2018.



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