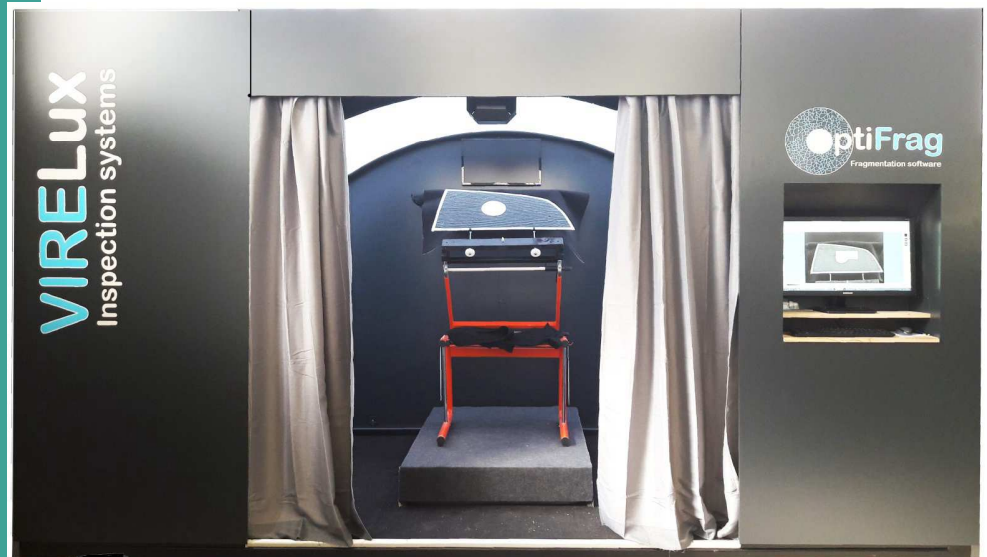


## Fragmentation Audit Station

### Features:

- No photosensitive paper film required
- Measures any automotive glass type
- Measures the serigraphy area
- Tinted and non-tinted glass
- Wires don't impact the results
- Automated measurement
- Digital archives
- Measurements are done using the glass' original shape
- Compliant with R43 guidelines



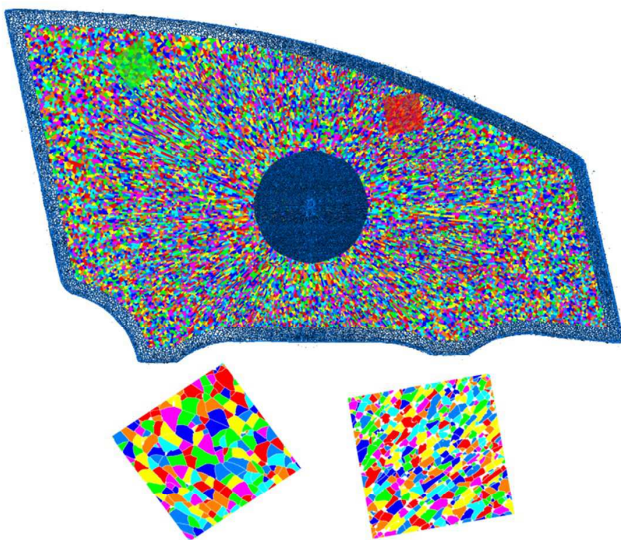
### Benefits

The OptiFrag control station quantifies glass fragments through advanced reflectometry, a process which analyses the light reflected by the fragmented surface.

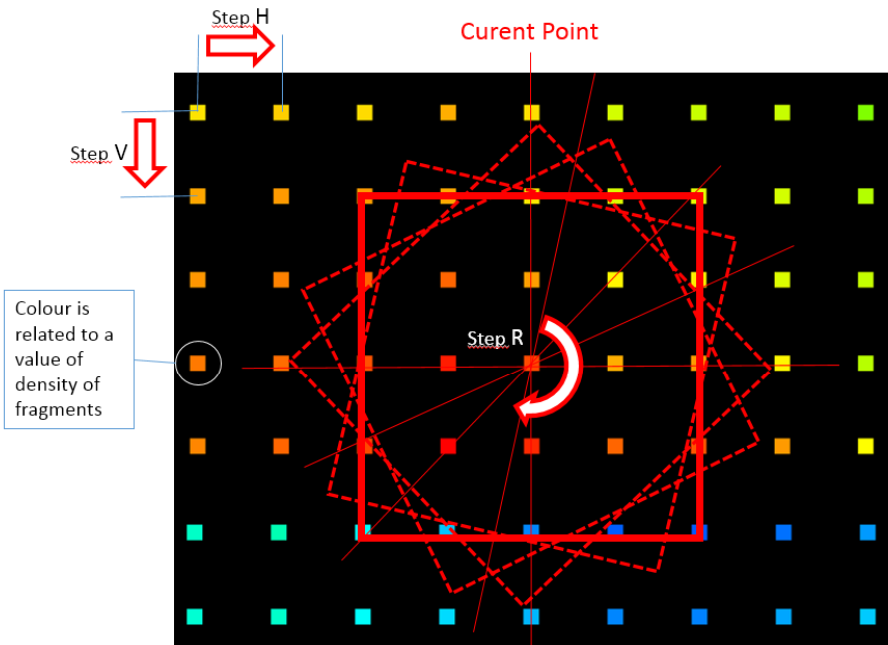
This technology offers significant improvements over legacy solutions as it eliminates the need for photosensitive paper film, and allows the measurement of fragments directly on the surface, including tinted glass, as well as areas with serigraphy. Furthermore, the results are not impacted by defrosting wires, or folds in the plastic film often used to maintain the fragments in place. In addition, the computerized process encourages cost-savings by migrating the storage of results from physical to digital archives.

What's more, the quality and quantity of data generated by the computer-based process offers a unique insight into the soaking process that cannot be achieved traditionally.

The control station uses the ECE R43 standard as its framework for analysis.



OptiFrag eliminates the constraints that commonly affect traditional testing methods



## Fragment density

In accordance with the R43 norm, the fragmentation density (5 x 5 cm square) is automatically identified through computer-guided translation and rotation of the density square.

The translation and rotation steps of the square can be freely modified and customized by the user. The generated density map allows the user to instantly identify the zones with the highest and lowest densities.

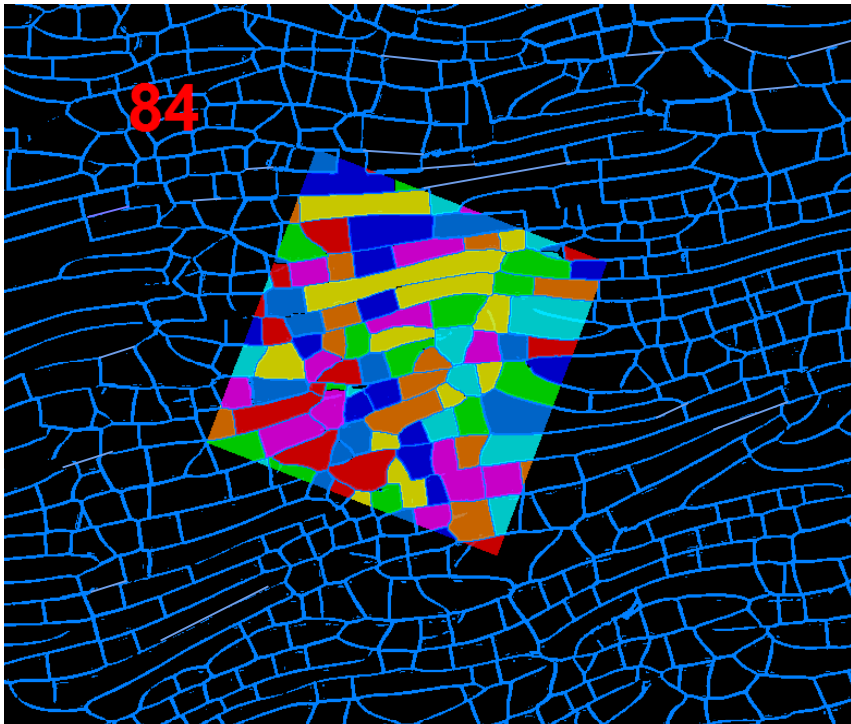
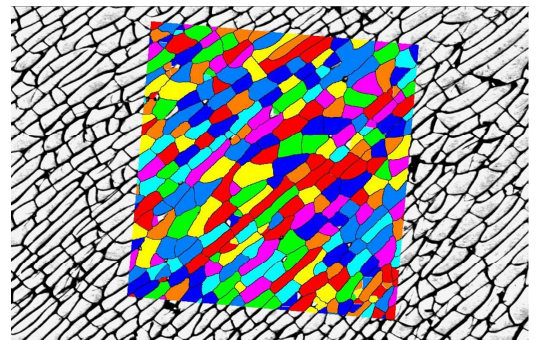
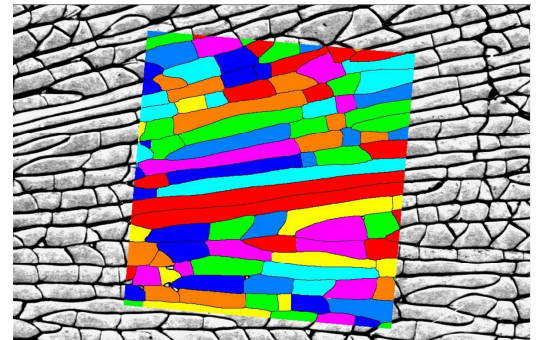
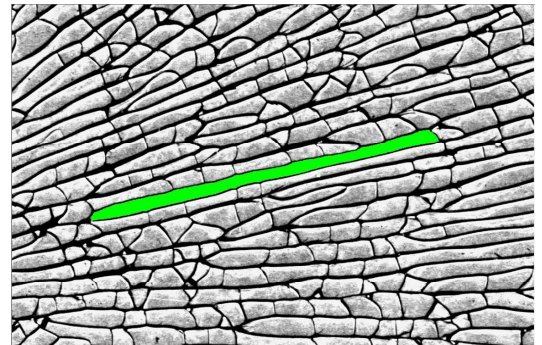
## Elimination of subjectivity

Manual counting is a fastidious and subjective process. The automated measurement process offers higher reliability and reproducibility of the results. Thus providing greater accuracy and efficiency.

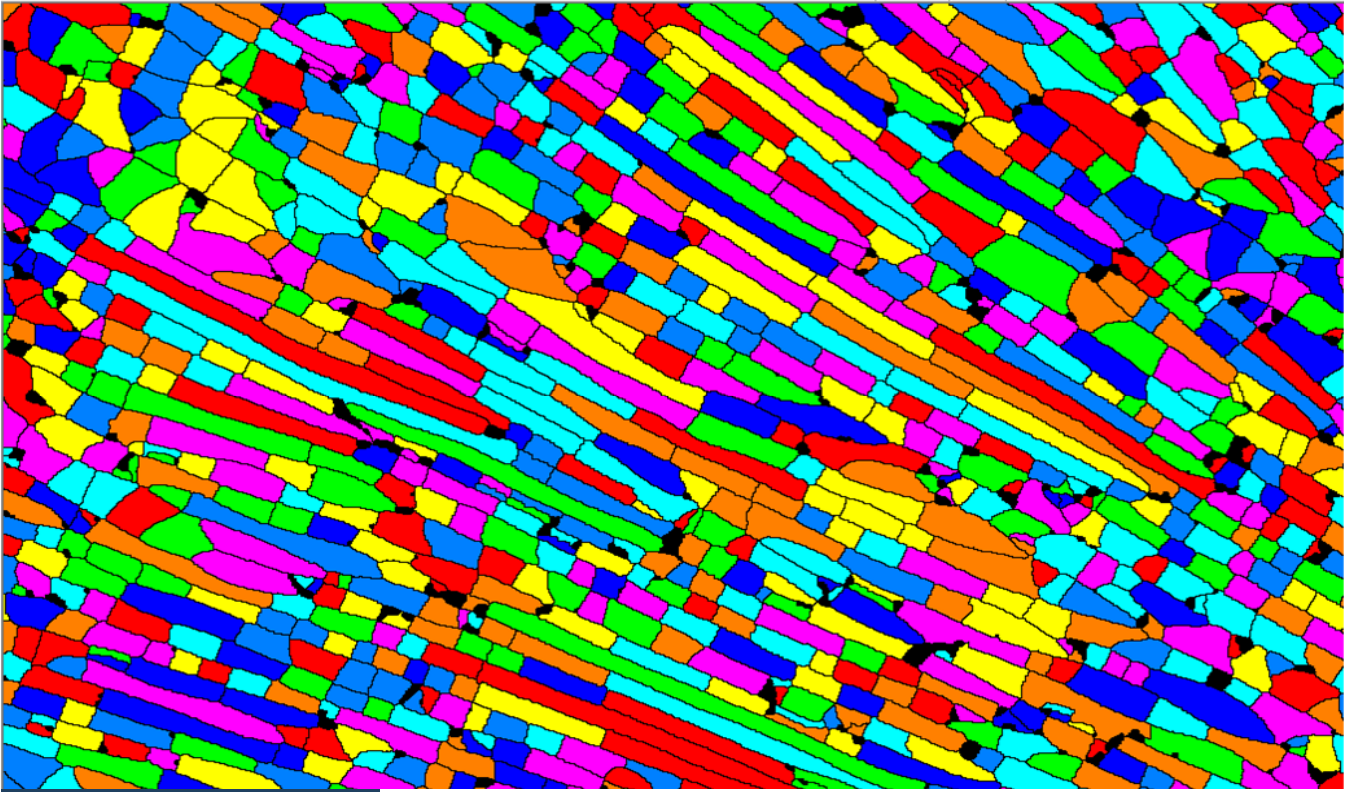
## Fast and reliable results

All the requirements defined by the R43 are instantly calculated and visually translated. The edges and the occultation zones around the impact point (circle of 75 mm radius) are for instance automatically identified by the software.

The shortest and longest segments, as well as the zones with the highest and lowest densities, are automatically highlighted. Furthermore, the innovative solution has the unique ability to analyze zones with serigraphy, a task that was until now uncontrollable due to the limitations of legacy solutions.







**Quality,  
Productivity,  
Security....**

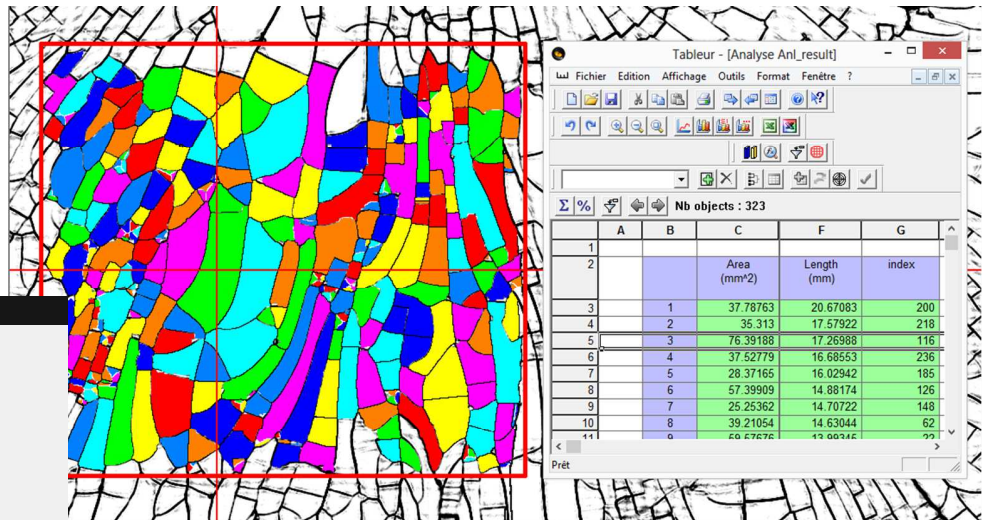
The new solution eliminates the limitations and constraints encountered with traditional testing methods. The solution provides a tangible foray into modernity for fragmentation tests with substantial productivity, quality and accuracy gains.

**Automatic labelling of the segments**

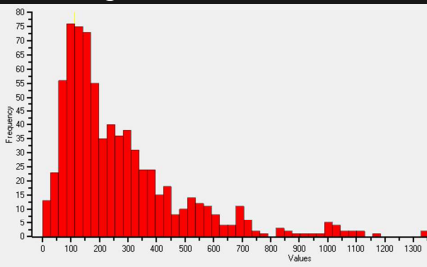
## Statistical tools and archiving

The solution automatically counts and quantifies each fragment, generating a global fragmentation map as well as a spreadsheet that lists each individual fragment (including its unique characteristics). The bidirectional interactivity between the map and the spreadsheet allows users to easily visualize any fragment and to consult its measured information such as coordinates, surface, length or any other set criteria.

These exclusive tools allow users to effortlessly classify, sort and visualize the distribution of the results for statistical analysis.

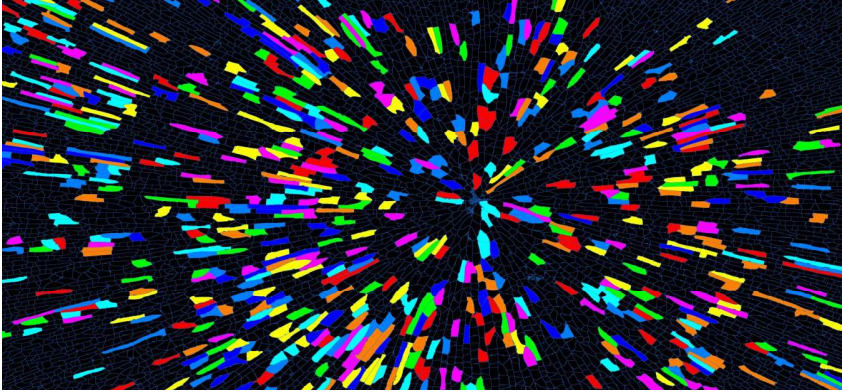


**Histogram of distribution**



**Direct link with the Data base (Excel file) by simple click in the segments**

# Display, Measurement overlay, sorting...



Sorting of the fragments > 10mm

The software allows users to easily create visual overlays between the acquired images and the measured results.

The overlay feature offers a great way to appreciate the overall quality of the results at any moment.

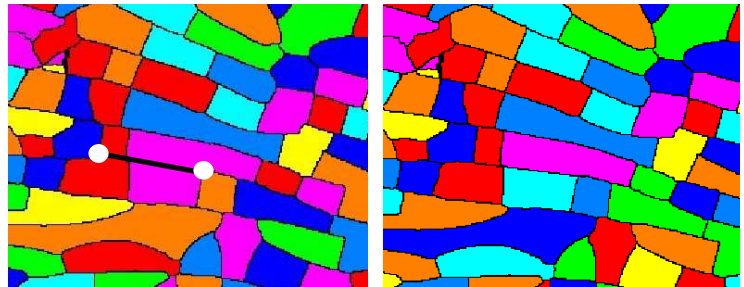
Incorporated sorting tools can highlight segments by size or any other dimensional criteria.

Tools for the statistical analysis of distributions are also included in the software.

## Boundaries reconstruction

Measurement results are delivered in 3 different visualization and treatment options:

- Automatic without reconstruction of insufficiently defined boundaries
- Automatic with reconstruction of insufficiently defined boundaries
- Manual boundaries reconstruction (executed by the operator)



Results before and after boundaries reconstruction

## OptiFrag Software

A version of the OptiFrag software is also available for the automatic analysis of scanned blueprints.

It offers the same functionalities as the audit station, with the exception that it uses scanned blueprints as reference for its measurements.



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Inspection systems

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## Test our solution

We can conduct measurements on your window panels at your request.

We can supervise the tests by fragmenting your glass sample panels and conducting the trials internally.

We'll provide you with a detailed report of the obtained analysis allowing you to compare the quality of our results .

**OptiFrag**  
Fragmentation Test Equipment