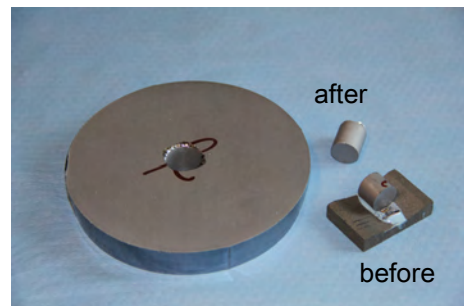


Introduction:

FTIR quantification of very small concentrations of various elements in ultra pure silicon, requires a polished, small and extremely plane sample. The precision cutting, sectioning 2250-2300 μm disc shaped pellets from a small cylindric piece, is a challenging multi step proces. Optimization to a fast and accurate proces eliminating need for epoxymounting is demonstrated in the solution.



Material Name: Ultrapure silicon mono crystal

Sample comments:

Developed by: Birgitte Nielsen

Date: 21-08-2015

Cutting

Equipment: Accutom-100
Detailed photos with Accutom-50

Cut-off wheel	MOD10
Feed speed	1.0 mm/s
Rotational speed	3000 rpm
Force	Medium
Slices/multi cut	3
Thickness	2.355 mm
Rotation	Off
Water	On



Before

Working Environment

Gluing with epoxy in a fume hood



Time Aspect

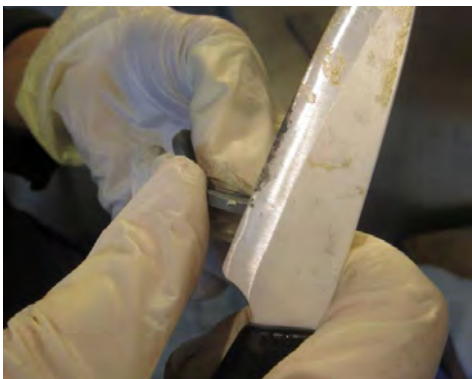
Many handling steps!

24 hours epoxy curing time (low flexibility)



Cost Saving

Graphite substrate/support plate for gluing



After

No gluing with epoxy!!

Handling time ~30 sec = very flexible!!

No graphite support needed!!

Efficient cutting with minimum of material waste



Solution: Three Jaw Chuck

Date: 04-11-2015

Summary

24 hours curing time from epoxy gluing proces , has been eliminated and thereby also removing a challenging alligning procedure before cutting. Cost cutting has been acheived as specialized graphite supports are no longer needed.

A 30 sec fixation proces in a specialized three jaw chuck, has replaced the epoxy gluing which also minimizes health and safety issues.

Signed by: Birgitte Nielsen

Struers