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Company Profile III/V Reclaim

Recently Compound Semiconductor visited III/V Reclaim, based in the beautiful setting of Bavaria, close to the Austrian border.

Stephen Whitehurst, Compound Semiconductor Director of Operations asked Dr. Joerg Schwar, President of III/V Reclaim, a number of questions about his operations.

Dr. Joerg Schwar
President of
III/V Reclaim

Stephen: Your technology can potentially cut the cost of epiwafer growth. So has the current economic climate actually aided your business?
Joerg: No and Yes...The order size depends on two numbers: how many wafer does the customer need and how many used wafer are available. Both numbers usually reflect the economic situation of our customers. In economically bad times we have more inquiries from new customers but the order volume of our established customers is lower.

Stephen: How does the thinning of the substrate affect its characteristics?
Joerg: Reclaimed wafer are thinner than new wafer but the loss of a few micron usually results in wafer thickness being still in prime specification. We have several customers reusing the wafer 10 times or more! If the application allows lower thinner wafer a multi-reuse the customer saves a lot of money (especially for InP).

Stephen: Will you extend your technology to SiC and GaN substrates?
Joerg: We have plans to do so but not in the near future. We have just added Germanium to our portfolio. The development of all processes of a new material takes years.

Stephen: How long does it take to process the substrates and return them to customers?
Joerg: Usually we deliver within 2 weeks. But we have an express service (delivery within a week - extra cost).

Stephen: Are you willing to work with customers that use relatively low volumes of material?
Joerg: The order sizes are from 1 wafer (valuable special material) to several thousands per order. We can handle single wafer but due to shipment cost it is reasonable to ship at least 25 wafer. Standard order size is 100-1000 wafer per shipment.

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III/V-Reclaim GaAs InP

III/V- Reclaim

"Reclaiming" is well-known in the silicon world as a cheap source for monitor, test or prime wafers. Since 1992 it is also available for GaAs and InP. The idea to recycle used wafers is obvious for economic reasons. You get inexpensive wafers with best bulk properties. The only difference to prime material is a thickness loss which is tolerable for most applications. Since all coatings are completely removed the surface has all properties of prime wafers. Even a repeated reclaiming is no problem.

Who is III/V-Reclaim?

When Wacker-Siltronic in Burghausen sold its compound semiconductor activities to Freiberger (FCM) in 1992 III/V-Reclaim started as a spin-off for the reclamation of GaAs and InP wafers. After 15 years of business and continuous process improvement we are still the only company worldwide offering a reclaim service for GaAs and InP wafers.

What is III/V-Reclaim doing?

We have developed a special process that allows all layers to be removed without damaging the substrate. The usual mechanical and chemical methods fail when you have to remove different kind of layers from a compound semiconductor wafer. Having removed the layers we polish the surface using single-side (double-side possible) chemo-mechanical planarisation processes. Our final cleaning results in a thin homogeneous oxide. A final inspection of each wafer ensures a continuously high level of quality. Our wafers can be used in epitaxy directly without any additional pretreatment!

Continuous process improvements enable high yields and low thickness losses. Substrate removal is about 10 micron, depending on incoming geometry, damage depth and thickness differences of the wafers (in case of small volume orders).

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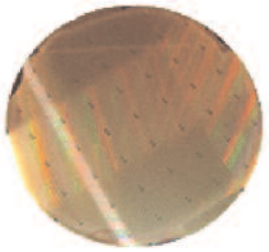
III/V-Reclaim GaAs InP

Products



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Our service comprises:

Reclaim of GaAs und InP; all sizes from 1" to 150mm, all formats
Polishing of raw slices
Double side polishing
Cheap special made wafers
Extra thin slices (e.g.: 2" GaAs 60 micron)
Backside thinning

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