



ANNEALSYS  
IN SEARCH OF EXCELLENCE

# Black Lithium Niobate Process solutions

## Key benefits

- ✓ **Pyro-electric effect removal** by thermal treatment under vacuum
  - Generation of oxygen vacancies in the crystal
  - Prevent the device destruction by static electricity
  - No difference at the piezo-electricity property
  - Process compatible with large thermal gradient or exothermic chemical cleaning
- ✓ **Fast process with no added reducing gas**
- ✓ **Level of reduction and the optical absorption function of the annealing temperature**



4" LiNbO3 wafer after RTA

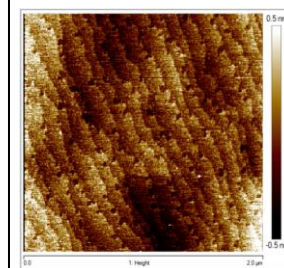
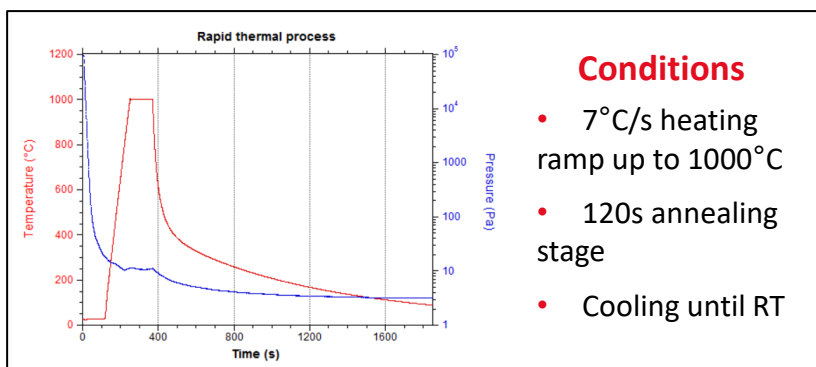


Increasing annealing temperature up to 1000 °C

## AS-Premium

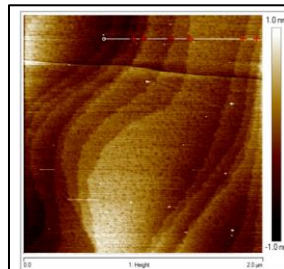
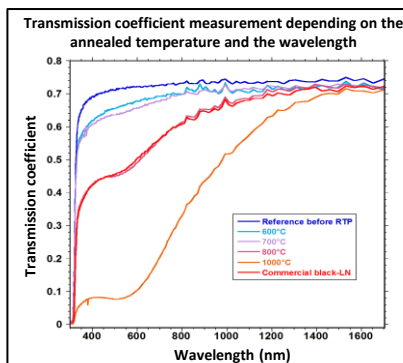
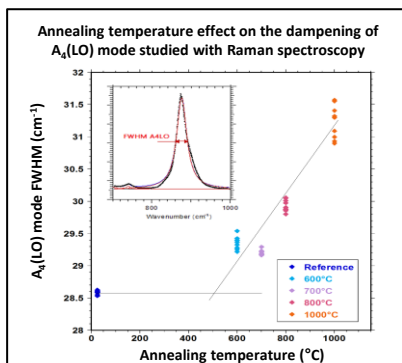


- **Two sides heating furnaces** with thermal compensation capability through and across wafers
- **Pressure control from 0.1 to 760 Torr**
- Temperature control from **RT to 1300°C**
- **Fast heating ramp up and cooling rate (>40°C/s)**
- SiC coated graphite susceptor for encapsulation of **4 and 6 inch wafers**



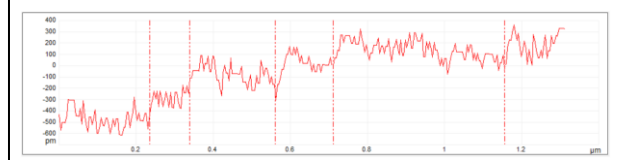
X-LiNbO3 after RTA

- **RMS = 0.24 nm**
- **Terraces**  
120-160 nm length  
20-30 Å height



Z-LiNbO3 after RTA

- **RMS = 0.31 nm**
- **Terraces**  
140-500 nm length  
20-40 Å height



For more information contact Annealsys: [contact@annealsys.com](mailto:contact@annealsys.com) – [www.annealsys.com](http://www.annealsys.com)