

SPACE COMMERCIALIZATION

INDUSTRIAL CRYSTALLIZATION FACILITY (ICF)

PRODUCT DESCRIPTION

Redwire's Industrial Crystallization Facility (ICF) is designed to grow single crystals in microgravity with type and size relevant to terrestrial use. ICF aims to minimize crystal defects such as inclusions, dislocations, and twinning caused by buoyancy-driven convection, and it grows both large and small crystals of higher quality than terrestrial analogs. Additionally, it facilitates nucleation studies wherein quality, morphology and size distribution of seeds grown in microgravity are studied relative to terrestrial equivalents. Ideal candidate crystals for growth in ICF are advanced engineering materials that expand the utilization of the International Space Station (ISS) into new product areas not previously investigated.



SPECIFICATIONS



CRYSTAL GROWTH PROCESS

Solution growth using thermal control. Cannot utilize evaporation methods at this time.

- + **Max Temperature:** up to 100 °C
- + **Min Temperature:** 10 °C
- + **Thermal Profile:** The Redwire team works with customers to deliver custom thermal profiles optimized for ideal microgravity growth of their crystals. Both isothermal and sustained thermal gradient options are supported.

CRYSTAL CHEMISTRIES SERVED

ICF utilizes inert materials and can serve many chemistries. To deliver the highest quality to customers, the Redwire team conducts a material compatibility assessment and hardware design at the onset of all new crystal projects.

- + **Solution Volume:** 100 to 3000 mL

IN SITU DATA COLLECTION CAPABILITIES

- + Cameras
- + Accelerometers
- + Temperature logging
- + Object tracking AI