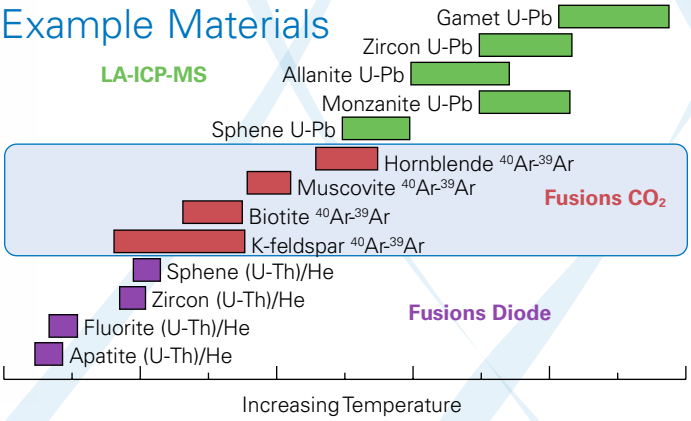
Fusions CO_2

Stepped Heating System

Application Areas

Geochronometry $^4He/^3He$ Dating
Noble Gas Isotope Ratio Analysis

Example Materials



About the Fusions CO_2

Configured for ^{40}Ar-^{39}Ar geochronology analyses in conjunction with a noble gas mass spectrometer, the Fusions CO_2 allows for the targeting and controlled (stepped) heating of mineral samples including feldspars and muscovites, in sections and grains, to their fusion point.

The Fusions CO_2 has the capacity to irradiate sample surface areas up to 5.5 mm in diameter using a field-proven, RF excited, sealed CO_2 laser that can be continuously adjusted in output power to >50 W. Unique beam-flattening technology converts the usual Gaussian beam profile to a flat, uniform heating distribution across the sample.

The Fusions CO_2 is a fully integrated system including laser, coaxial beam delivery unit, motorized zoom video microscope, XYZ motion control stages, variable spot size and ring light illumination for precision, line-of-sight imaging and targeting.

Key Features

Laser

- 50 W RF-excited water cooled CO_2 laser with controller and power supply
- Continuously variable power from ~1W to max. output over 5000 steps
- Water flow interlock

Viewing Optics and Video

- Video zoom microscope for live images
- Motorized zoom video microscope
- Color CCD camera

Beam Delivery Unit (BDU)

- Motorized spot selection from ~150 µm to 5.5 mm
- Optional integrated homogenizer for flat, uniform heating over 3 mm diameter wells
- F/O ring light with software controlled variable intensity illuminator
- BDU combines laser, CCD, and ring light for coaxial/coplanar performance
- Integrated adjustable iris

Motion Control

- Motion control tower supports and moves the laser, beam delivery unit, and optical system over a stationary sample chamber (not included)
- 50 mm motorized XYZ travel, all axes
- 1 µm resolution

19" Rack Mount Electronics

Class IV laser enclosure and mounting hardware

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PHOTON MACHINES
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INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO
DIRECT OR SCATTERED RADIATION
Wavelength: 10.6 µm / 100 W
CLASS 4 LASER PRODUCT

CETAC Technologies and Photon Machines joined forces back in June 2010 with a view to advance laser ablation technology for elemental analysis, and to offer a full range of products globally. This collaboration brought together the experience in Photon Machines' design team with the sample introduction expertise of CETAC. This partnership has taken the next natural step and both companies have merged under the Teledyne Instruments banner.

Teledyne Photon Machines, a brand of Teledyne CETAC Technologies, provides laser ablation systems including CO_2 and diode lasers, 213 nm solid state Nd:YAG, 193 excimer laser systems and femtosecond laser systems. In addition, the company provides accessories to enhance the capabilities of laser ablation systems.

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