



Burning And Suppression of Solids-II (BASS-II)



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Objective:

- BASS-2 will evaluate select materials' flammability limits in microgravity for comparison to 1 g limits for various types of materials (charring, non-charring, smoldering, and composites)
- BASS-2 will study flame ignition, stabilization, and fuel geometry effects on flame spread.
- BASS-2 will assess effectiveness of nitrogen extinguishment agent (similar to that used on ISS) in putting out flames over different materials, geometries, and flow.

Relevance/Impact:

- BASS results strongly suggest that materials that pass a 1g flammability test may be flammable under same conditions in 0g with spacecraft ventilation flow.
- Practical, realistic fuels in typical geometries will be examined, including difficult to extinguish wake flames which are shielded from direct extinguishment.

Development Approach:

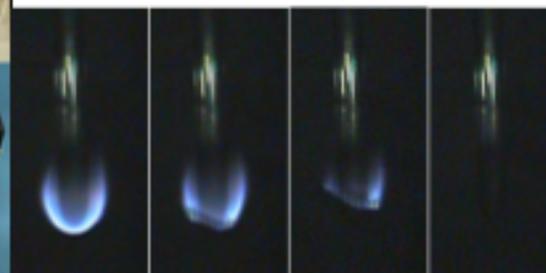
- BASS-2 will utilize the on orbit hardware SPICE which was launched on STS-126 and operates in the MSG on ISS.
- Crew required to set up and operate the experiment. Video and data down-linked to the ground for evaluation.
- BASS-2 new samples, igniters, micro-drives for the camera will launch on Orbital 1 and will be operated during Increment 38-40 on board the ISS in the Microgravity Science Glovebox.

Revision Date: 12/04/2014



BASS-2 uses the SPICE Experiment Assembly

Glenn Research Center



0g PMMA rod extinction sequence

ISS Resource Requirements

Accommodation (carrier)	Microgravity Science Glovebox
Upmass (kg) (w/o packing factor)	3.24 samples and igniters only
Volume (m³) (w/o packing factor)	0.096
Power (kw) (peak)	0.05
Crew Time (hrs) (installation/operations)	120 hours crew time
Autonomous Ops (hrs)	N/A (all hands on crew ops)
Launch/Increment	Orbital 1/Inc 38

Project Life Cycle Schedule

Milestones	SCR	RDR	PDR	CDR	SR/DR	Fit Safety	FHA	Launch	Ops	Return	Final Report
Actual/ Baseline	N/A	N/A	N/A	8/1999	8/2013	9/2013	10/2013	1/2014	Inc. 38-40	OPS+12 m	Return +12m