



1

00:00:12,360 --> 00:00:18,680

MSolo stands for Mass Spectrometer Observing Lunar Operations.

2

00:00:18,680 --> 00:00:23,910

We took an off-the-shelf mass spectrometer and worked with INFICON to ruggedize the design

3

00:00:23,910 --> 00:00:25,890

to withstand the harshness of space.

4

00:00:25,890 --> 00:00:30,100

We bolstered the glass instrument detector, redesigned the avionics boards for better

5

00:00:30,100 --> 00:00:34,809

heat flow and increased radiation tolerance and applied other standard spaceflight practices

6

00:00:34,809 --> 00:00:36,879

into the design.

7

00:00:36,879 --> 00:00:42,200

On the lunar surface, MSolo can measure resources like water – crucial to deep space exploration.

8

00:00:42,200 --> 00:00:46,330

And it can measure the gasses coming off a lander during touchdown—this is important

9

00:00:46,330 --> 00:00:49,710

so we know what is truly coming from the Moon, and what we brought with us.

10

00:00:49,710 --> 00:00:53,860

Being able to identify the lander signature will ensure we are only measuring what was

11

00:00:53,860 --> 00:00:56,080

already on the lunar surface.

12

00:00:56,080 --> 00:01:01,850

MSolo will be sent to the Moon as part of the Commercial Lunar Payload Services contract—essentially,

13

00:01:01,850 --> 00:01:05,650

commercial companies are building lunar landers, and technology like ours is hitching a ride

14

00:01:05,650 --> 00:01:06,939

down to the surface.

15

00:01:06,939 --> 00:01:10,930

Not only will MSolo help us learn more about the Moon and ultimately change the way we

16

00:01:10,930 --> 00:01:15,070

explore our solar system, but the new rugged design we helped create is changing things

17

00:01:15,070 --> 00:01:16,650

down here on Earth too.

18

00:01:16,650 --> 00:01:22,040

By modifying an off-the-shelf mass spectrometer, NASA helped INFICON identify ways they could

19

00:01:22,040 --> 00:01:26,470

improve their product that would also help universities and other researchers using their

20

00:01:26,470 --> 00:01:29,050

equipment in harsh environments here on Earth.

21

00:01:29,050 --> 00:01:34,780

In Costa Rica, investigators are flying a commercial mass spectrometer on drones over

22

00:01:34,780 --> 00:01:38,930

volcanos—safely detecting what gases are being emitted.

23

00:01:38,930 --> 00:01:43,570

Information from volcanic plumes provides insight into what is happening inside the

24

00:01:43,570 --> 00:01:47,590

volcano, alerting researchers if a major eruption is imminent.

25

00:01:47,590 --> 00:01:51,751

We are proud of MSolo's capabilities in space, and right here on Earth.

26

00:01:51,751 --> 00:01:54,560

And now, we're headed to the Moon!