



1
00:00:00,846 --> 00:00:02,956
Hi, I'm Bryan Harder
from the Durability

2
00:00:02,956 --> 00:00:04,116
and Protective Coatings Group.

3
00:00:05,066 --> 00:00:08,196
Behind me is the Plasma Spray
Physical Vapor Deposition Rig

4
00:00:08,376 --> 00:00:09,626
here at NASA Glenn
Research Center.

5
00:00:10,426 --> 00:00:13,406
This rig allows us to both melt
and vaporize ceramic material

6
00:00:13,756 --> 00:00:17,006
to protect both metal and
ceramic engine components.

7
00:00:17,666 --> 00:00:19,226
These new engine
components will allow us

8
00:00:19,296 --> 00:00:22,186
to create the next generation of
gas turbine engine technology.

9
00:00:23,036 --> 00:00:25,346
During a run process,
our samples are mounted

10
00:00:25,426 --> 00:00:27,416
to a metallic plate
which is then loaded

11

00:00:27,416 --> 00:00:28,716
on our sample mounting arm.

12

00:00:30,066 --> 00:00:32,816
The chamber is closed and the
entire system is evacuated

13

00:00:32,816 --> 00:00:36,656
to a pressure of one torr,
which is 1/760 of atmosphere.

14

00:00:38,466 --> 00:00:40,356
The plasma is then
created from the torch

15

00:00:41,176 --> 00:00:42,506
which extends the
length of the chamber.

16

00:00:43,686 --> 00:00:46,676
The temperature of this
flame can reach 6 to 10,000K

17

00:00:47,226 --> 00:00:49,736
which both melts and
vaporize our ceramic material.

18

00:00:50,846 --> 00:00:53,666
The vaporized material condenses
onto the target substrates

19

00:00:54,526 --> 00:00:55,596
and the coating is created.

20

00:00:57,176 --> 00:01:00,366
After the run, the chamber is
brought back up to pressure

21

00:01:00,506 --> 00:01:01,876
and the samples are

removed for testing.

22

00:01:02,866 --> 00:01:05,586

So after the deposition
is complete we're left

23

00:01:05,586 --> 00:01:07,646

with a nice thin layer of
ceramic on our samples.

24

00:01:08,376 --> 00:01:09,876

These can now be
removed from the plate