
STBD

1
00:00:05,990 --> 00:00:03,510
the combustion integrated rack or sir in

2
00:00:08,549 --> 00:00:06,000
the destiny laboratory makes it possible

3
00:00:10,790 --> 00:00:08,559
to perform a wide variety of experiments

4
00:00:12,789 --> 00:00:10,800
that teach us how fire behaves in

5
00:00:14,950 --> 00:00:12,799
microgravity

6
00:00:17,109 --> 00:00:14,960
in the center of the sur is a large

7
00:00:19,750 --> 00:00:17,119
round chamber called the multi-user

8
00:00:22,310 --> 00:00:19,760
droplet combustion apparatus

9
00:00:24,870 --> 00:00:22,320
this 100 liter chamber has eight windows

10
00:00:27,029 --> 00:00:24,880
and five cameras that allow scientists

11
00:00:28,830 --> 00:00:27,039
to observe patterns made when burning

12
00:00:31,349 --> 00:00:28,840
fuels under different

13
00:00:33,430 --> 00:00:31,359

conditions the five cameras are capable

14
00:00:36,150 --> 00:00:33,440
of photographing high resolution high

15
00:00:39,030 --> 00:00:36,160
frame rate images in ultraviolet low

16
00:00:42,229 --> 00:00:39,040
light and in multiple spectrums that are

17
00:00:44,150 --> 00:00:42,239
specific to combustion events

18
00:00:46,709 --> 00:00:44,160
several additional hardware components

19
00:00:49,910 --> 00:00:46,719
can be added to the ser to customize its

20
00:00:52,150 --> 00:00:49,920
chamber for specific experiments flex is

21
00:00:54,950 --> 00:00:52,160
the flame extinguishment experiment that

22
00:00:58,150 --> 00:00:54,960
utilizes the sur to conduct various burn

23
00:01:00,069 --> 00:00:58,160
tests on gas and liquid fuel

24
00:01:01,830 --> 00:01:00,079
it also tests the effectiveness of

25
00:01:04,149 --> 00:01:01,840
different methods for extinguishing the

26
00:01:06,789 --> 00:01:04,159
flames from the test

27
00:01:09,030 --> 00:01:06,799
iss provides a sustained microgravity

28
00:01:11,429 --> 00:01:09,040
environment which allows scientists to

29
00:01:13,429 --> 00:01:11,439
observe the geometric chemical and

30
00:01:15,910 --> 00:01:13,439
thermodynamic properties of both the

31
00:01:17,990 --> 00:01:15,920
flame and the fuel droplet inside the

32
00:01:20,230 --> 00:01:18,000
burn chamber

33
00:01:22,149 --> 00:01:20,240
under these conditions we can advance

34
00:01:25,109 --> 00:01:22,159
our fundamental understanding of how

35
00:01:27,590 --> 00:01:25,119
fuels burn in microgravity as well as on

36
00:01:30,069 --> 00:01:27,600
earth this research will be used to

37
00:01:32,789 --> 00:01:30,079
better address fire hazards associated

38
00:01:34,789 --> 00:01:32,799

with liquid combustibles

39
00:01:37,030 --> 00:01:34,799
the wealth of information obtained from

40
00:01:39,429 --> 00:01:37,040
the test in flex will also help

41
00:01:41,350 --> 00:01:39,439
scientists on earth solve problems with

42
00:01:42,950 --> 00:01:41,360
pollution that is generated by

43
00:01:44,550 --> 00:01:42,960
combustion

44
00:01:46,789 --> 00:01:44,560
the many different experiments in the

45
00:01:48,710 --> 00:01:46,799
combustion integrated rack will help

46
00:01:50,950 --> 00:01:48,720
engineers increase the efficiency of

47
00:01:51,749 --> 00:01:50,960
gasoline and diesel engines here on

48
00:01:53,830 --> 00:01:51,759
earth