



सीएसआईआर - सार्वजनिक परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL
TESTING CELL
TEST CERTIFICATE परीक्षण प्रमाण पत्र



अतिरिक्त प्रथम प्रति
Additional First Copy

FORMAT NO.: (CIMFR: DQM: FLP02: P-01: REV-01)
(Flame & Explosion Laboratory)

Prototype Report No. CIMFR/TC/P/ 204	Dated: 13 May, 2015
ID NO.: 130/14	CODE NO. FLP/284/13-14

RESULT OF THE EXPLOSION TEST FOR FLAME ARRESTER

Date of Test: 12/02/2015

Gas mixture used for testing: 37% Hydrogen in air for Gas Group IIB as per IS/IEC 60079-1: 2007.

Explosion Test: The tests were conducted on the above flame arrester as per clause 11.1 of IS 11006-1984.

No. of Tests: The explosion tests were conducted five times with fresh gas mixture each time by igniting the gas mixture by low energy spark plug/fuse.

Test Results: In each test it was found that the explosive mixture present in the test pipeline at the protected side was not ignited. Hence explosion occurred on the unprotected side was unable to travel to the protected side of the test pipeline through the flame-arrester.

Test reference nos. of Explosion Test for Flame Arresters as follows :

Arrester Size	Test Ref. Nos.	Gas Group	Gas Mixture % in Air	No. of Test	Result
(250 NB)	EIT/13001 to EIT/13005	IIB	37 % Hydrogen	Five	Pass

Conclusion: The above **FLAME ARRESTER**, Size: 10" (250 NB) in M.S. fabricated construction designated by **Model No.: KES/FA/1/CS/10**, under reference meets the test requirement of clause no. 11.1 of IS: 11006-1984 for use in Gas Group: IIB atmosphere only.

Reported By

(R. K. VISHWARMA)
Sr. Scientist

Dated: 13th May, 2015
Flame & Explosion Laboratory
Central Institute of Mining & Fuel Research, (CSIR)
(Erstwhile: Central Mining Research Institute)
Barwa Road, DHANBAD - 826 015,
(JHARKHAND) INDIA

Approved By

(A. K. SINGH)
Head of the Department



FORMAT NO.: (CSIR - CIMFR: FLP02: P-01: REV-01)
 (Flame & Explosion Laboratory)

Prototype Report No. CIMFR/TC/P/25 Dated: 18th June, 2015

ID NO.: 130A/14

CODE NO. FLP/284 (A)/13-14

RESULT OF THE EXPLOSION TEST FOR FLAME ARRESTER

Date of Test: 12/02/2015

Gas mixture used for testing: 37% Hydrogen in air for Gas Group IIB as per IS/11006-1984/1-2007.

Explosion Test: The tests were conducted on the above flame arrester as per clause 11.1 of IS 11006-1984.

No. of Tests: The explosion tests were conducted five times with fresh gas mixture each time by igniting the gas mixture by low energy spark plug/fuse.

Test Results: In each test it was found that the explosive mixture present in the test pipeline at the protected side was not ignited. Hence explosion occurred on the unprotected side was unable to travel to the protected side of the test pipeline through the flame-arrester.

Test reference nos. of Explosion Test for Flame Arresters as follows :

Arrester Size	Test Ref. Nos.	Gas Group	Gas Mixture % in Air	No. of Test	Result
(200 NB)	EIT/130A01 to EIT/130A05	IIB	37 % Hydrogen	Five	Pass

Conclusion: The above FLAME ARRESTER, Size: 8" (200 NB) in M.S. fabricated construction designated by Model No.: KES/FA/I/CS/8, under reference meets the test requirement of clause no. 11.1 of IS: 11006-1984 for use in Gas Group: IIB atmosphere only.

Reported By

Arvind Kumar
 9/6/15

[ARVIND KUMAR]
 TECHNICAL OFFICER
 Dated: 17th June, 2015
 Flame & Explosion Laboratory
 Central Institute of Mining & Fuel Research, (CSIR)
 (erstwhile: Central Mining Research Institute)
 Barwa Road, DHANBAD - 826 015,
 (JHARKHAND) INDIA

Approved By

A. K. Singh
 [A. K. SINGH]
 Head of the Department



सीएसआईआर - कोयला एवं ईंधन संशोधन प्रयोगशाला संशोधन प्रकोष्ठ

CSIR - CIMFR TESTING CELL



TEST CERTIFICATE

अतिरिक्त द्वितीय प्रतिलिपि

Additional Second Copy



FORMAT NO. (FLP02: P-01: REV-01)
(Flame & Explosion Laboratory)

Prototype Report No. CIMFR/TC/P/77	Dated: 18 th June, 2015
ID NO.: 130B/14	CODE NO. FLP/284B/13-14

RESULT OF THE EXPLOSION TEST FOR FLAME ARRESTOR

Date of Test: 11/02/2015

Gas mixture used for testing: 37% Hydrogen in air for Gas Group IIB as per IS/IEC 60079-1:2007.

Explosion Test: The tests were conducted on the above flame arresters as per clause 11.1 of IS 11006-1984.

No. of Tests: The explosion tests were conducted five times with fresh gas mixture each time by igniting the gas mixture by low energy spark plug/fuse.

Test Results: In each test it was found that the explosive mixture present in the test pipeline at the protected side was not ignited. Hence explosion occurred on the unprotected side was unable to travel to the protected side of the test pipeline through the flame-arrestor.

Test reference nos. of Explosion Test for Flame Arrestors as follows :

Arrestor Size	Test Ref. Nos.	Gas Group	Gas Mixture % in Air	No. of Test	Result
(150 NB)	EIT/130B01 to EIT/130B05	IIB	37 % Hydrogen	Five	Pass

Conclusion: The above FLAME ARRESTER, Size: 6" (150 NB) in M.S. fabricated construction designated by Model No.: KES/FA/1/CS/6, under reference meets the test requirement of clause no. 11.1 of IS: 11006-1984 for use in Gas Group IIB atmosphere only.

Reported By

Approved By

Navin Kumar

A. K. Singh
15/06/15

(NAVIN KUMAR)
Technical Officer

(A. K. SINGH)
Head of the Department

Dated: 11th June, 2015
Flame & Explosion Laboratory
Central Institute of Mining & Fuel Research, (CSIR)
(erstwhile: Central Mining Research Institute)
Barwa Road, DHANBAD - 826 015,
(JHARKHAND) INDIA



FORMAT NO.: (CIMFR/ DQM: FLP02: P-01: REV-01)
 (Flame & Explosion Laboratory)

Prototype Report No. CIMFR/TC/P/95 Dated: 15 June, 2015
 ID NO.: 130C/14 CODE NO. FLP/284C/13-14

RESULT OF THE EXPLOSION TEST FOR FLAME ARRESTOR

Date of Test: 11/02/2015

Gas mixture used for testing: 37% Hydrogen in air for Gas Group IIB as per IS/IEC 60070-1:2007.

Explosion Test: The tests were conducted on the above flame arresters as per clause 11.1 of IS 11006-1984.

No. of Tests: The explosion tests were conducted five times with fresh gas mixture each time by igniting the gas mixture by low energy spark plug/fuse.

Test Results: In each test it was found that the explosive mixture present in the test pipeline at the protected side was not ignited. Hence explosion occurred on the unprotected side was unable to travel to the protected side of the test pipeline through the flame-arrestor.

Test reference nos. of Explosion Test for Flame Arresters as follows:

Arrestor Size	Test Ref. Nos.	Gas Group	Gas Mixture % In Air	No. of Test	Result
(100 NB)	EIT/130C1401 to EIT/130C1405	IIB	37 % Hydrogen	Five	Pass

Conclusion: The above **FLAME ARRESTER**, Size: 4" (100 NB) in M.S. fabricated construction designated by Model No.: KES/FA/1/CS/4, under reference meets the test requirement of clause no. 11.1 of IS: 11006-1984 for use in Gas Group IIB atmosphere only.

Reported By

Navin Kumar

(NAVIN KUMAR)
 Technical Officer

Dated: 15th June, 2015
 Flame & Explosion Laboratory
 Central Institute of Mining & Fuel Research, (CSIR)
 (Erstwhile: Central Mining Research Institute)
 Barua Road, DHANBAD - 826 015, (JHARKHAND) INDIA

Approved By

A. K. Singh
 (A. K. SINGH)
 Head of the Department



सीएसआईआर - के.एस.सी.एम.ए.ए. परीक्षण प्रकोष्ठ

CSIR - CENTRAL INSTITUTE OF MINING & FUEL RESEARCH TESTING CELL

TEST CERTIFICATE / परीक्षण प्रमाण पत्र



मूलप्रति
ORIGINAL COPY

FORMAT NO.: (CIMFR: DQM: FLP02: F-01: REV-01)
(Flame & Explosion Laboratory)

Prototype Report No. CIMFR/TC/P/689 Dated: 10th November, 2015

ID NO.: 130D/14

CODE NO. FLP/100/15-16

RESULT OF THE EXPLOSION TEST FOR FLAME ARRESTER

Date of Test: 06/11/2015

Gas mixture used for testing: 37% Hydrogen in air for Gas Group IIB as per IS/IEC 60079-1: 2007.

Explosion Test: The tests were conducted on the above flame arrester as per clause 11.1 of IS 11006-1984.

No. of Tests: The explosion tests were conducted five times with fresh gas mixture each time by igniting the gas mixture by low energy spark plug/fuse.

Test Results: In each test it was found that the explosive mixture present in the test pipeline at the protected side was not ignited. Hence explosion occurred on the unprotected side was unable to travel to the protected side of the test pipeline through the flame-arrester.

Test reference nos. of Explosion Test for Flame Arresters as follows :

Arrester Size	Test Ref. Nos.	Gas Group	Gas Mixture % in Air	No. of Test	Result
3" (80 NB)	EIT/130D1401 to EIT/130D1405	IIB	37 % Hydrogen	Five	Pass

Conclusion: The above **FLAME ARRESTER, Size: 3" (80 NB)**, in M.S. fabricated construction designated by **Model No.: KES/FA/1/CS/3**, under reference meets the test requirement of clause no. 11.1 of IS: 11006-1984 for use in Gas Group: IIB atmosphere only.

Reported By

Navin Kumar

(NAVIN KUMAR)
Technical Officer

Dated: 10th November, 2015
Flame & Explosion Laboratory
Central Institute of Mining & Fuel Research, (CSIR)
(Eratville: Central Mining Research Institute)
Barwa Road, DHANBAD - 826 015, (JHARKHAND) INDIA

Approved By

A. K. Saha

(A. K. SAHA) / N
Head of the Department

को ख० एवं ई० अ० सं० परीक्षण प्रकोष्ठ - CIMFR TESTING CELL



TC CODE NO.FLP/145/06 EQUIPMENT ID NO. 438A/06

RESULT OF THE EXPLOSION TEST FOR FLAME ARRESTERS

Date of test: 23.07-2009

Gas mixture used for testing: 37% (Hydrogen in air) in air for Gas Gr. IIA/IIB as per IS 2148-2004.

Explosion test: The tests were conducted on the above flame arresters as per clause 11.1 of IS 11006-1984.

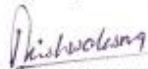
No. of tests: The explosion tests were conducted five times with fresh gas mixture each time by igniting the gas mixture by low energy spark plug/fuse.

Test results: In each test it was found that the explosive mixture present in the vent line at the protected side was not ignited. Hence explosion occurred on the unprotected side was unable to travel to the protected side of the vent line through the flame-arrestor.

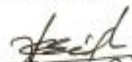
Sr. No.	Size of Flame arrester	Test reference nos.
1	2" Flame arrester	438A0601 TO 438A0605

Conclusion: The Flame-Arrester, 2" Size, under reference meets the test requirement of clause 11.1 of IS: 11006-1984.

Reported by


(R. K. VISHWAKARMA)
SCIENTIST

Approved by


(A. K. SINGH) 23/07/09
HEAD OF THE DEPARTMENT

Dated: 27th July, 2009
Flame & Explosion Laboratory,
Central Mining Research Institute, (CSIR-INDIA)
Barwa Road, Dhanbad -826001, Jharkhand, India.