

1.0 PURPOSE

This document establishes a voluntary Mine Safety and Health Administration (MSHA) Standard Application Procedure (SAP) for the flame testing, evaluation and acceptance of solid products taken into underground mines.

2.0 SCOPE

The Code of Federal Regulations (CFR), Title 30 contains mandatory regulations for flame resistant requirements of many products used in underground mines. However, there are numerous other products which may present similar fire hazards, but for which no specified test and/or regulation exist. This procedure provides for the testing and evaluation of these materials.

3.0 REFERENCES

- 3.1. Approval and Certification Center (A&CC) Cancellation Policy (APOL 1009).
- 3.2. Code of Federal Regulations (30 CFR), Part 7.44(a) (4) (i), Part 7.26 and 7.27, Part 18.37(f) (1), Part 18.45(e) & Part 18.65.
- 3.3. ASTP 5007 - MSHA's Standard Flame Test Procedure For: Hose Conduit, Fire Suppression Hose Cover, Fire Hose Liner And Other Materials; Title 30, Code Of Federal Regulations, Part 18, Section 18.65
- 3.4. ASTP 5011 - Standardized Small Scale Flame Test Procedure for the Acceptance of Roof-Rib Grid Material
- 3.5. Approval and Certification Center (A&CC) Acceptance of Conduit Hose, Fire Suppression Hose Cover and Fire Hose Liner for use in Underground Coal Mines (ASAP 5009).

4.0 DEFINITIONS

- 4.1. Applicant: A company that manufactures or controls the assembly of a product, and is seeking certification of materials used in the product.
- 4.2. Preauthorization notice: A statement by the applicant authorizing MSHA to expend a stated amount of money in evaluating / testing the applicant's product prior to the preparation and issuance of the MSHA fee estimate.
- 4.3. Supplier: A company that supplies primary ingredients or pre-polymers to an applicant as part of a product under evaluation by MSHA.

- 4.4. Chemical Name: Name of a compound following International Union of Pure and Applied Chemistry (IUPAC), CAS number, and/or American Chemical Society (ACS) rules.
- 4.5. Generic Name: A non-IUPAC name that still inherently describes specific atoms, their bonding, and possibly their manufacturing process. A trademarked name is not generic. Example: “Flashspun high density polyethylene,” but not “Tyvek.”

5.0 APPLICATION PROCEDURE

5.1. We recommend that applicants contact the Quality Assurance & Materials Testing Division at 304-547-0400 to discuss approval and testing requirements prior to submitting an application.

5.1.1. MSHA may accept the following products/materials under this Application Procedure:

- a. Air hose cover,
- b. Belt skirt,
- c. Belt wipers,
- d. Chute liner,
- e. Hydraulic hose cover,
- f. Mine spray hose cover,
- g. Pulley lagging (conveyor roller material),
- h. Rock dust hose cover,
- i. Seat cushion material,
- j. Water hose cover, (not as fire hose),
- k. Impact bars,
- l. Roof/Rib Grid Material,
- m. Shield pocket filler material,
- n. Hydraulic hose sleeve.

Note: Applications for the acceptance of Roof / Rib Grid Material must include a completed Attachment 2.

This list is not totally inclusive. MSHA may evaluate and process other products, depending on the potential use and associated hazard. As such, the materials and required tests will be judged on a case-by-case basis.

5.1.2. The following products are also evaluated under these procedures and are required to be flame-resistant in accordance with 30 CFR.

30 CFR Referenced Sections

- | | |
|---------------------------|------------------|
| a. Battery Box Insulation | 7.44 (a) (4) (i) |
| b. Cable Reel Insulation | 18.45 (e) |
| c. Packing Material | 18.37 (f) (1) |

- d. Fire Suppression Hose 18.65
- e. Hose Conduit 18.65
- f. Fire Hose Liner 75.1100-1 (f) (2)
- g. Lifelines 75.381 (c) (5) (ii)

Some materials have multiple end uses, and some end uses requiring testing while testing is voluntary for others. Hose cover material is an example. 30 CFR 75.1107-3 (c) requires that cover for fire suppression hose meet the test requirements under 30 CFR 18.65 (e). MSHA evaluates fire hose, fire suppression hose and hose conduit under ASAP 5009. However, if a hose cover material is intended for use with fire suppression hose *and* hydraulic hose or hose conduit and hydraulic hose, MSHA can evaluate that product under ASAP 5009 and assign the respective acceptance number.

5.2. The application requesting approval is submitted via the following routes:

- a. Physically mailed to:
MSHA, Approval and Certification Center
Attention: IPSO
765 Technology Drive
Triadelphia, West Virginia 26059
- b. Email Submittals:
Application letters, specifications, drawings and other supporting documentation should be sent to zzMSHA-IPSO@DOL.gov
- c. FAX to: 304-547-2084
- d. FTP Submittals:
Application letters and supporting documentation can be placed on the MSHA FTP server, mfr.msha.gov. Please call the Information Processing Services Office (IPSO) at 304-547-0400 to establish your user account.

5.2.1. Each application for approval and supporting documents must be in the English Language and include the following information on the attached application forms (Attachment 1 – Item 1).

- a. Company name
- b. Address
- c. Telephone number
- d. Email of company representative
- e. Billing contact at the company (may be the same as main contact)
- f. Employer Identification Number (EIN) assigned by the United States IRS. A DUNS number may also be used if necessary.

- 5.2.2. Provide a company assigned application No. (six digits or less) (Attachment 1 - Item 2).
- 5.2.3. Provide a complete description of the product to include (Attachment 1 - Item 3):
- Product name
 - Formulation name and version
 - Potential use
- 5.2.4. Complete formulation: Each ingredient must be specified by its chemical or generic name along with its percentage (weight) and tolerance. Organic ingredients should be named according to the current rules of the International Union of Pure and Applied Chemistry. Inorganic ingredients should be named according to the Chemical Abstract of the American Chemical Society. A pre-polymer formulation which has been registered with MSHA may be identified by furnishing the MSHA assigned ID number. However, each additional ingredient the manufacturer adds to the chemical or generic name, along with its percentage (weight) and tolerance must be identified by chemical or generic name, along with its percentage (weight) and tolerance (Attachment 1 - Item 4).
- 5.2.5. Textile description: If the material is a textile, describe the properties of threads used and density of the weave, and ranges as application. Use units such as the denier of the thread, the warp and weft of the weave, thread count, and/or the area weight of the fabric (Attachment 1 - Item 5).
- 5.2.6. Provide information on the toxicity of the finished product. MSHA recommends Safety Data Sheets (or MSDS) as per 29 CFR 1910.1200 or 30 CFR Part 47. SDS may not be required. See the article exemption under 29 CFR 1910.1200 (c) and 29 CFR 1910.1200 (f) (4) (i) before proceeding (Attachment 1 - Item 6).
- 5.2.7. A signed Certification Statement regarding toxicity (Attachment 1, Item 7).
- 5.2.8. Certify to or submit documents describing quality assurance procedures used to manufacture the product (Attachment 1 - Item 8):
- Procurement procedures for the components or ingredients of the product.
 - Manufacturing practices to maintain the formulation.
 - Procedures for record keeping, such as inspection records, sampling plan, test results, etc.
 - Critical Characteristics that will be flame tested or inspected to ensure that the finished product meets the flame resistance test requirements.
- 5.2.9. Provide product drawings (if applicable - Attachment 1 - Item 9).
- 5.2.10. Provide sales literature (if available – Attachment 1- Item 10).
- 5.2.11. Samples Required for Testing (Attachment 1, Item 11).

- 5.2.11.1. Applicants must submit pre-cut, postpaid samples of the proper size and quantity (minimum 4) as specified by MSHA. The size of each sample will be 1/2" wide by 6" long by the thickness of the material. Generally, MSHA will accept a range of material thickness if the thinnest and thickest samples meet the flame test requirements (Attachment 1 - Item 11a).
- 5.2.11.2. Applicants for acceptance of Roof/Rib Grid Material must submit a 4 ft. by 30 ft. roll for testing; shipping must be prepaid (Attachment 1 -Item 11b).
- 5.2.12. Applicants for acceptance of Roof/Rib Grid Material must further describe the product using Attachment 2.

5.3. Application Processing

- 5.3.1. Upon receipt of a complete application, an estimate for the cost of processing the application (authorization letter) will be prepared and sent to the applicant. However, the applicant may submit a preauthorization notice with their applications to expedite processing and to eliminate the authorization letter. Contact the Approval and Certification Center (304-547-0400) for a cost estimate. MSHA will not charge before authorization.
- 5.3.2. If an applicant chooses to cancel, MSHA will charge for work performed up to the cancellation. If charges are less than the preauthorized amount, MSHA will charge the lesser amount.
- 5.3.3. MSHA will determine acceptable flame resistance of a product using one or more of the following flame test procedures:
 - a. The "2G" test: ASTP5007 - MSHA's Standard Flame Test Procedure for: Hose Conduit, Fire Suppression Hose Cover, Fire Hose Liner and Other Materials; Title 30, Code of Federal Regulations, Part 18, Section 18.65
 - b. Standardized Small Scale Flammability Tests: ASTP5011 - Standardized Small Scale Flame Test Procedure for the Acceptance of Roof-Rib Grid Material; (Also see: 30 CFR, Part 7, Subpart B)

MSHA may require a different test in instances where these flame test procedures are inappropriate due to the physical characteristics or intended use of certain materials.

5.4. Product Acceptance

- 5.4.1. Upon successful testing and evaluation of the submitted product, MSHA will issue an acceptance number.

- 5.4.2. An accepted product shall be permanently and legibly labeled with the acceptance designation as instructed by MSHA. MSHA may permit alternate forms of labeling.
- 5.4.3. The manufacturer may submit a request for a “modification” of acceptance for a product by following the Revised Approval Modification Program (RAMP) process to modify acceptances (ASAP1005), if minor changes in the product’s construction, composition or use is proposed. MSHA will determine if testing is required for these modifications.
- 5.4.4. Companies other than the original manufacturer can market an accepted product under a different trade name or designation (private label). However, to maintain the validity of the acceptance, the original acceptance number issued by MSHA shall not be changed. Any other markings on the product are at the discretion of the manufacturer or distributor. Additionally, MSHA must be promptly notified of such actions by submitting a multi-listing RAMP application
- 5.4.5. A product may be advertised as “accepted by MSHA” but such terms as “approved”, “recommended”, or “sanctioned” by MSHA must not be used.
- 5.4.6. All construction details, formulations and test results, or other information designated as proprietary and/or confidential, will be regarded as such with the exception of the company name, address, phone number, product name, and intended product use.
- 5.5. Product Failure: Should the product fail the testing, MSHA will cancel the application and any accrued fees will be billed.
- 5.6. Notification of Discrepancy: MSHA will notify the applicant of any problems (discrepancies) with the submitted documents that require correction before issuing acceptance. Discrepancies will be resolved in accordance with A&CC’s cancellation policy (APOL 1009).
- 5.7. Revocation: MSHA may revoke any acceptance and may require a product’s removal from underground mines should it be found to be unsafe, create a health hazard, or otherwise not be in conformance with the acceptance criteria.

5. Textile properties. If the material is a textile, describe the properties of threads used and density of the weave, and ranges as application. Use units such as the denier of the thread, the warp and weft of the weave, thread count, and/or the area weight of the fabric.

Thread description: _____

Weave description: _____

Other description, as needed: _____

6. Provide information on the toxicity of the finished product. MSHA recommends Safety Data Sheets (or MSDS) as per 29 CFR 1910.1200 or 30 CFR Part 47. SDS may not be required. See the article exemption under 29 CFR 1910.1200 (c) and 29 CFR 1910.1200 (f) (4) (i) before proceeding.

7. Non-Toxic Certification Statement:

On the basis of (check one or more, as appropriate):

_____ OSHA PELs

_____ MSHA PELs

_____ Current Year ACGIH TLVs®

I certify that the product _____ (*trade name*)
in its final form presents no health hazards under normal use conditions.

Signature _____

Print name _____

Title (*authorized company official*) _____

Date _____

8. Attach the following quality assurance documentation information, or certify using the statements on the next page:
- Procurement procedures for the components or ingredients of the product,
 - Manufacturing practices to maintain the formulation,
 - Procedures for record keeping, such as inspection records, sampling plan, test results, etc.
 - Critical Characteristics that will be flame tested or inspected to ensure that the finished product meets the flame-resistance test requirements.

Quality Assurance Certification Statements:

We _____ [*company name*]
certify that we will produce _____ [*product/material name*]
using the procurement, manufacturing, testing, and record keeping requirements detailed below. If we are unable to continue to meet these requirements, we will cease production of the product featuring the MSHA marking until the issue is resolved, contact MSHA if defective product was sold, or contact MSHA to retire the approval.

Procurement

We certify that we will procure each formulation component of the above-named product from suppliers that certify the component meets its specified purity. We will conduct and record our own inspections prior to use to ensure components conform to previous performance. If working with a formulation component that is not certified for purity, we will perform our own analysis.

Manufacturing

We certify that we will employ manufacturing tools and procedures that ensure production of the above-named product in a manner that continuously matches the formulation, and matches the performance of the samples sent to MSHA for testing and ultimately the MSHA approval documentation.

Testing

We certify that we will inspect each lot of the above-named product, and that the inspection method will ensure we will find and correct changes to the product's flame-resistant properties in order to meet MSHA approval.

Record Keeping

We certify that we will store records of procurement, inspections, testing, and manufacture of the above-named product for a minimum of five years from the date of manufacture.

Signed _____ [*authorized company official*]

Print Name _____

Title _____ Date _____

9. Attached - product drawings (if applicable) Yes _____ No _____

10. Attached - sales literature (if available) Yes _____ No _____

11. Samples Required for Testing:

- a. Most materials: Samples are at least 4 pre-cut specimens submitted for testing. Generally, each specimen should be 1/2" wide by 6" long (1.25 cm x 15 cm) by the thickness of the material (wall thickness of hoses and hose sleeve). Shipping of samples must be prepaid. List samples below based on thickness or other options. MSHA tests these samples by 30 CFR Part 18.65.

Sample 1 (state min. thickness): _____

Sample 2 (state max. thickness): _____

Sample 3 (other description as needed): _____

- b. Roof/rib grid material: Generally, the size of the sample for testing is 4 ft. by 30 ft. roll. Shipping of samples must be prepaid. List samples below based on options, if applicable. MSHA tests these samples by 30 CFR Part 7.27.

Sample 1: _____

Sample 2: _____

Sample 3: _____

Attachment 2

Flame Resistant- Roof / Rib Material Specification Sheet

1. Provide a typical drawing or photograph and specify all dimensions of the roof/rib product.
2. Specify (on the drawing) the location where the product will be marked with the MSHA Acceptance Number.

a. Trade Name(s)				
b. Style, Code No. or other designation				
c. Color				
d. Thickness (mil)				
e. Weight (oz/sq. yd.)				
f. Aperture Specifications				
1. Aperture shape and dimensions				
2. Aperture density per 50 x 50 cm square				
3. Secondary aperture shape and dimensions				
4. Secondary aperture density per 50 x 50 cm square				
5. Width of the fabric band at the product's edge				
6. Width of the fabric between apertures				
7. Secondary width of the between apertures				