Federal Register

Thursday
December 24, 1992

Part V

Department of Labor

Mine Safety and Health Administration

30 CFR Part 14, et al.
Requirements for Approval of Flame-Resistant Conveyor Belts; Proposed Rule

DEPARTMENT OF LABOR

Mine Safety and Health Administration

30 CFR Parts 14, 18 and 75

RIN 1219–AA65

Requirements for Approval of Flame-Resistant Conveyor Belts

AGENCY: Mine Safety and Health Administration (MSHA), Labor.

ACTION: Proposed rule.

SUMMARY: This proposed rule would implement new procedures and requirements for testing and approval of flame-resistant conveyor belts to be used in underground mines. The proposed revisions would replace the existing flame test for acceptance of flame-resistant conveyor belts specified in agency regulations. The proposal would also include current terminology. Currently regulations require that conveyor belts be flame resistant in accordance with specifications of the Secretary. Conforming amendments to safety standards are being proposed as part of this rulemaking.

DATES: Written comments must be submitted on or before February 22, 1993.

ADDRESSES: Send written comments to the Mine Safety and Health Administration, Office of Standards, Regulations and Variances, Room 631, Ballston Tower No. 3, 4015 Wilson Boulevard, Arlington, Virginia 22203.

FOR FURTHER INFORMATION CONTACT: Patricia Silvey, (703) 235–1910.

SUPPLEMENTARY INFORMATION:

I. Paperwork Reduction Act

This proposal contains information collection requirements in §§ 14.4, 14.7 and 14.8. These paperwork requirements have been submitted to the Office of Management and Budget (OMB) for review under section 3504(h) of the Paperwork Reduction Act of 1980. Comments on the proposed paperwork provisions should be sent directly to the Office of Information and Regulatory Affairs, Office of Management and Budget, Attention: Desk Officer for MSHA (see address at the end of this discussion). The respondents would be mine equipment manufacturers. The burden hour estimate includes the time for reviewing instructions, gathering and maintaining the data needed, and completing and reviewing the collected information. In each instance, the resultant information collected would be used by MSHA to assess compliance with the proposed requirements. The information collection requirements contained in the proposal are discussed below.

Proposed § 14.4 would require applicants seeking approval of flame-resistant conveyor belts to submit an application for approval. MSHA estimates there would be 250 applications submitted the first year, 150 applications during the second year, and 60 applications in the third and following years. The time needed to prepare and submit each application is projected to be 5 hours for each approval application for a conveyor belt that is not similar to one previously approved (original application) for the applicant and 2 hours for each extension of approval or approval application of a conveyor belt similar to one that has been previously approved. The proposal would not require submittal of duplicative documentation on extension of approval and approval applications for conveyor belts similar to a previously approved belt. Hence these applications would take less time to prepare than original applications. MSHA estimates that initially the first year, there would be 200 original applications submitted, each requiring 5 hours to prepare, and 50 applications similar to ones previously submitted, each requiring 2 hours to prepare. The estimated burden hours are 1100. During the second year, MSHA estimates there would be 75 original applications submitted, each requiring 5 hours to prepare, and 75 similar applications, each requiring 2 hours to prepare. The estimated burden hours are 525. In the third and following years, MSHA estimates there would be 60 applications, each requiring 2 hours to prepare. The estimated burden hours are 120.

The proposal would require applicants to maintain records on the distribution of all conveyor belt bearing an approval marking as set forth in § 14.7(d). This provision does not specify the type of record, and MSHA believes applicants will use existing sales record systems to comply; therefore, no burden hours are assigned to this requirement.

Proposed § 14.8(d) requires applicants to report to MSHA any knowledge of any conveyor belt distributed with flame resistance characteristics not in accordance with the approval specifications. MSHA estimates that, in a worse case, manufacturers would submit 12 reports per year requiring 15 minutes per report. Estimated burden hours are 3.

Send comments regarding these burden estimates or any other aspects of this collection of information, including suggestions for reducing this burden, to Patricia W. Silvey, Director, Office of Standards, Regulations and Variances, MSHA, room 631, Ballston Tower #3, 4015 Wilson Boulevard, Arlington, Virginia 22203, and to the Office of Information and Regulatory Affairs of OMB, Attention: Steve Semenuk Desk Officer for the Mine Safety and Health Administration, room 3001, New Executive Office Building, Washington, DC 20503.

II. Background

Conveyor belt systems are used extensively in underground mines to transport mined material. MSHA estimates there are about 3,000 feet (900 meters) of conveyor belt in an average small underground coal mine (covering 1,500 feet (450 m) for conveyance and return) and 28,000 feet (8,500 m) of conveyor belt in an average large underground mine. Because of the fire hazards in underground coal mines, existing MSHA safety standards require that conveyor belts be flame resistant in accordance with specifications of the Secretary by passing the flame test for conveyor belt specified in § 18.65. That test is conducted in a 21-inch (53.3 cm) cubical test gallery with belt samples 6-inches (15.2 cm) long by ½-inch (1.27 cm) wide by belt thickness.

MSHA requires mine operators to report any mine fires that either are not extinguished within 30 minutes of discovery or involve a serious injury. MSHA's Belt Entry Ventilation Review: Report of Findings and Recommendations (1989) contains a historical review of reportable underground coal mine fires involving conveyor belts. In addition, two other MSHA reports contain information on underground coal mine fires involving conveyor belts. These reports are Coal Mine Fires Involving Track and Belt Entries, 1970–1988, dated November 19, 1990 and Mine Fire Prevention and Response Strategies, dated October 31, 1991. An analysis of information from these reports follows.

From 1970 through 1990, 307 underground coal mine fires were reported and investigated by MSHA. Conveyor belts were identified to be involved in 42 of these fires. The 42 fires represent 14 percent of the total number of fires over this 21-year period. Moreover, belt fires as a percentage of total fires have shown increases over the last twelve years with half of the belt fires occurring in the last eight years.

From an analysis of the available data, approximately 75 percent of the belt fires occurred in the mainlines, with about 25 percent of the belt fires occurring in the panel or section beltlines. Two of the 42 belt fires, or

about 5 percent resulted in the mine being sealed. These data also indicate that about 30 percent of the belt fires resulted in flame traveling for hundreds of feet. Such fires create a severe hazard to the health and safety of miners.

When belt fires reach the propagation stage, they produce more fire gases and spread faster than the fires of surrounding coal surfaces. The belt fires that have occurred since 1970 have burned as much as 2,000 feet (600 m) of belt before the fire was extinguished.

The 21 underground coal mine fires from 1983 through 1990 that involved conveyor belts and the large-scale flammability studies of conveyor belts conducted by the Bureau of Mines, U.S. Department of the Interior (BOM) in cooperation with MSHA have shown that the flame test specified in § 18.65 is not optimal for evaluating the flammability of conveyor belts. For example, some conveyor belts that passed the current flame test readily propagated flame and were completely consumed by fire in large-scale gallery tests that were more representative of the mine environment. As a result, BOM and MSHA worked together to develop a revised test that would more effectively assess the flame resistance of conveyor belts than the flame test in § 18.65.

The Agency is aware that in recent years the United Kingdom has developed a conveyor belt evaluation program that provides the U.K. with a product having flame resistance superior to that provided by existing part 18 requirements in the United States. Germany and the U.K. are currently involved with the other European nations to negotiate a common standard.

The revised test is intended to address the resistance of conveyor belts to both ignition and flame propagation. It is designed to significantly reduce or eliminate the hazard of flame propagation along the belt.The revised test would identify conveyor belts which are difficult to ignite and are self-extinguishing under the test conditions. Therefore, conveyor belts passing the revised test would not only be resistant to ignition, but also highly resistant to flame propagation.

This proposal would replace the current regulations covering the testing and acceptance for flame resistance of conveyor belts found in 30 CFR part 18 with new regulations incorporating the revised flame test.

III. Discussion and Summary of Proposed Rule

The test procedures and criteria in subpart B are the result of the BOM and MSHA's cooperative efforts to develop a more appropriate laboratory-scale flammability test for conveyor belts. The primary concerns were to develop procedures that are objective, repeatable and which appropriately assess the flammability of conveyor belts in the context of the mining environment in which they are used.

Development of Laboratory—Scale Test and Procedures

A large-scale flammability test for conveyor belt was jointly developed by the BOM and MSHA. Experimental tests were conducted in the BOM surface fire gallery located at the Lake Lynn Laboratory. The fire gallery consisted of a 90-foot (27.4 m) long by 12.5-foot (3.8 m) wide arched tunnel (81 square feet (7.5 m^2) cross-sectional area) coupled, by means of a transition section, to a 6-foot (1.8 m) diameter axivane fan. The gallery contained a typical conveyor belt structure. A 30-foot (9.1 m) length of belt, typically 42-inches (107 cm) wide, was placed on the top rollers of the structure. The ignition source was a 2-gallon (7.6 liter) liquid fuel fire (700 kilowatts (2520 millijoules)) in a 3-foot (0.9 m) by 2-foot (0.6 m) tray located below the upstream end of the belt sample. The gallery airflow was set at 300 feet per minute (ft/min) (91.4 m/min) (24,300 CFM (688 m^3/min)). Previous studies on the effect of ventilation on conveyor belt fires with rubber and polyvinyl chloride (PVC) belts had shown that flame propagation at these test conditions was most likely to occur with this airflow. (see "Effect of Ventilation on Conveyor Belt Fires" by C.P. Lazzara and F.J. Perzak, presented at the Symposium on Safety in Coal Mining, Pretoria, South Africa (October 1987) and "Impact of Entry Air Velocity on the Fire Hazards of Conveyor Belts" by H.C. Verakis and R.W. Dalzell, presented at the 4th International Mine Ventilation Congress, Brisbane, Australia (July, 1988) and "Reducing the Fire Hazard of Mine Conveyor Belts" by H.C. Verakis, presented at the 5th U.S. Mine Ventilation Symposium, West Virginia University in Morgantown, WV (June 4, 1991) which detail these studies.)

A belt passed the large-scale flammability test if a portion of the 30-foot (9.1 m) long sample, across its width, remained undamaged by fire (excluding blistering). Sixteen different formulations of conveyor belts, 8 rubber and 8 PVC, that passed the current MSHA flammability test (30 CFR 18.65) were subjected to the large-scale gallery test. Six of these formulations passed the test and ten failed. For the belts that failed, flame propagation rates varied from about 1 foot (0.3 m) per minute to 30 feet (9.1 m) per minute. Results from the large-scale test were repeatable and the test provided an appropriate method for evaluating the flame resistance of conveyor belts in a manner that was more representative of the mining environment than the current test.

The large-scale test requires an expensive fire gallery facility and large amounts of belt. This makes it expensive to conduct testing. It would not be feasible for belt manufacturers to construct the large-scale fire gallery and perform the test. It would not be feasible for MSHA or the BOM to use the large-scale facility for approval testing. Therefore, the BOM began development of a laboratory-scale flammability test for conveyor belts that provide results comparable with the large-scale test. To develop the laboratory-scale test the ventilated tunnel dimensions were selected on the basis of experience with fire testing and the development of flammability tests. Other values such as sample size, the air velocity and ignition time were varied to obtain comparable results to the large-scale test. The laboratory-scale test developed consists of a horizontal 5.5-foot (1.68 m) long by 1.5-foot (0.46 m) square ventilated tunnel. The size of the belt test sample is 60 inches (152.4 cm) long by 9 inches (22.9 cm) wide. The tunnel airflow is 200 feet per minute (61 m/min) (450 CFM (12.7 m^3/min)) and the ignition source is a gas burner applied to the upstream end of the sample for 5 minutes. A belt formulation passes the test if, in each of three separate trials, there remains a portion of the sample, across its entire width, undamaged by fire.

Samples of the same 16 formulations of belts that were examined in the large-scale gallery test were subjected to the laboratory-scale test and the results compared. Of these, 8 were rubber belt formulations, and 8 were PVC formulations. Of the 16 formulations examined, one formulation passed the laboratory-scale test but failed the large-scale gallery test and one formulation passed the large-scale gallery test and failed the laboratory-scale test.

The development of flammability tests is not an exact science. Because of the difficulty in designing a laboratory-scale test that is in complete agreement with a large-scale test, the comparison of test results obtained between these two procedures is considered to be very good. MSHA solicits comments on the appropriateness of the laboratory-scale test.

The laboratory-scale flammability test described above and in subpart B of this proposed rule was found to produce

repeatable, objective test results. MSHA and the BOM believe this test appropriately assesses the flame resistance of conveyor belts in a relatively inexpensive manner that is more representative of the mining environment than the present test. The laboratory-scale test procedure also provides results comparable with the large-scale test with control of certain critical factors. (See "Conveyor Belt Flammability Tests: Comparison of Large-Scale Gallery and Laboratory-Scale Tunnel Results" by C.P. Lazzara and F. J. Perzak, presented at the 23rd International Conference of Safety In Mines Research Institutes, Washington, D.C. (September 11–15, 1989) which details this agreement).

Due to the fire dynamics during testing, certain design characteristics essential in obtaining uniform and consistent test results are specified in subpart B. These include tunnel dimensions, sample size and distance of sample rack to tunnel roof. These factors are critical for obtaining agreement and repeatable test results. For example, the requirements for construction of the laboratory-scale tunnel described in subpart B minimize thermal losses through the walls. The specified burner provides a controlled and consistent flame during the ignition period and was found to be a reliable and uniform ignition source. Variations in the principal parts of the apparatus and procedures will affect the burning process, yielding unreliable results. However, where variations do not affect the reliability of the test results, design characteristics have not been specified.

IV. Section-by-Section Discussion

Subpart A—General Provisions

Section 14.1 Purpose and effective date.

This section is derived from existing § 18.1 and would establish the requirements for conveyor belts to be approved under part 14. Conveyor belts are used for the transportation of coal and other mining products in underground mines. Because of the hazard presented by fires in underground coal mines, existing 30 CFR 75.1108 requires the use of flame-resistant conveyor belts as determined by specifications of the Secretary. Under this proposal, MSHA would modify the existing requirements specified for acceptance of conveyor belts contained in §§ 18.6(c), 18.6(i), and 18.65 after a review of the public record and consideration of all comments.

The proposal would take effect 60 days from the publication of the final rule. At the same time, the applicable portions of part 18 referring to conveyor belts would be modified. After this date, all applications for approval of conveyor belts would be required to meet the requirements of this part, and applications for acceptance of conveyor belts would no longer be processed under part 18.

MSHA is implementing a voluntary acceptance program concurrent with the publication of this proposal. Under this program manufacturers may submit applications to MSHA's Approval Certification Center requesting the testing of their conveyor belts in accordance with the test procedures outlined in proposed § 14.22. Acceptance numbers will be issued to conveyor belts meeting the acceptable performance criteria, identifying those conveyor belts that have demonstrated this improved flame resistance. The inception of this program would not affect the existing acceptance program conducted under part 18. MSHA intends to continue to offer the new voluntary acceptance program for evaluation of belts with improved flame resistance until the effective date of the final rule for this part.

MSHA anticipates that, as a result of manufacturers' participation in the voluntary acceptance program, a substantial number of conveyor belts in compliance with the improved flame-resistance requirements would be commercially available on the effective date of the final rule. Based upon this projection, as well as the performance of belt samples during the development of the proposed test, MSHA believes the manufacturers will be able to submit applications for approval of conveyor belts in accordance with the final rule shortly after its publication. MSHA has, therefore, proposed the effective date of the final rule to be 60 days after its publication.

Section 14.2 Definitions.

The following definitions which apply to the approval of conveyor belts are designed to clarify the requirements of this part. Many are derived from existing § 18.2, although some are new.

Applicant. This term, which is derived from existing § 18.2, would identify an applicant as an individual or organization that manufactures or controls the production of the conveyor belt and that applies to MSHA for approval of that conveyor belt.

Approval. This term would replace the "Acceptance" terminology defined in existing § 18.2. An approval would be defined as a document issued by MSHA which states that a conveyor belt has met the requirements of this part. It also would authorize an approval marking identifying the conveyor belt as approved.

This would be consistent with other recent MSHA approval regulations which define "approved" as the general term which indicates that products have met MSHA's technical requirements and have been designed and manufactured to ensure that the products will not present a fire, explosion, or other specified safety hazard related to use.

Conveyor belt. This term is new. It would define a conveyor belt to be a flexible strip of material that is typically constructed of interwoven fabric or plies and polymeric compounds and used to transport coal or other extracted minerals.

Extension of approval. This term, which is new as applied to conveyor belts, would define an extension of approval as a document issued by MSHA which states that a change to a conveyor belt previously approved by MSHA under this part meets the requirements of this part. It would also authorize the continued use of the approval marking after the appropriate extension number has been added. The definition of this term would, like that of "approval", provide for consistent terminology.

Load bearing cover. This term is new and would describe the top cover of a conveyor belt. The load bearing cover is designed to be the surface upon which the extracted minerals are conveyed

Post-approval product audit. This term is new. It would be defined as MSHA's examination, testing, or both, of an approved conveyor belt selected by MSHA to determine whether it meets the technical requirements and has been manufactured as approved.

Section 14.3 Observers at tests and evaluations.

This section is derived from existing § 18.9(a) and would specify those individuals who could be present during testing and evaluation conducted under this part. These individuals would be limited to personnel of MSHA, BOM, representatives of the applicant and such other persons as agreed upon by MSHA and the applicant. This section is intended to protect proprietary information which could be available to observers at tests and evaluations conducted under this part.

Section 14.4 Application procedures and requirements.

This section, which is derived from existing § 18.6, would set forth the procedures and requirements for requesting approval of a flame-resistant conveyor belt. It does not contain

specific provisions concerning the fees to be charged for approval of a flame-resistant conveyor belt. Instead, § 14.4(b) would require that fees, calculated pursuant to Part 5, Fees for Testing, Evaluation, and Approval of Mining Products, (52 FR 17506) be submitted with each application for approval or extension of approval.

Fees for MSHA processing of an application under part 14 would be subject to an hourly rate charge for evaluation and testing. On hourly rate actions, applicants would be billed for the fee when processing of the action is completed.

MSHA would charge $39 per hour for evaluation and $41 an hour for testing with an application fee of $100 for processing requests for approval or extension of approval of flame-resistant conveyor belt under part 14. These fees are based on the fee adjustments published in the **Federal Register** on December 20, 1991, (56 FR 66299) effective January 1, 1992.

This rule would organize the application procedures into two types of approval actions: Approval and extension of approval. In requesting an approval for a flame-resistant conveyor belt, MSHA would require the submission of all information necessary to properly evaluate a conveyor belt as it relates to the approval requirements. If, after receipt of an approval, the applicant requests approval of a similar conveyor belt or an extension of approval for the original conveyor belt, the applicant would not be required to submit documentation duplicative of previously submitted information. Only information related to changes in the previously approved conveyor belt would be required, avoiding unnecessary paperwork.

This proposal would include a requirement that changes in the specifications of a previously approved flame-resistant conveyor belt must be approved by MSHA. This would avoid unauthorized changes being made that could affect the flame resistance of the conveyor belt.

Section 14.4(c) would require an applicant to submit information to characterize the identification and construction of a conveyor belt. The applicant would have the option to either provide the complete formulation of a conveyor belt or to specify each fire retardant ingredient by percentage along with a listing of each flammable and inert ingredient. While the submission of this information is not specifically addressed, existing § 18.6(c) and current application procedures for acceptance of conveyor belts require formulation information to be provided.

The proposal provides that an application for approval of a conveyor belt that is similar to a previously approved conveyor belt would include an explanation of any changes from the existing approval, along with the approval number of the belt which most closely resembles the new one. Documentation which is listed in the prior approval need not be resubmitted.

Section 14.4(d) would require an application for extension of approval to include a description of the proposed change to an approved belt and the MSHA approval number for the belt for which the extension is requested. The applicant would not be required to submit documentation duplicative of previously submitted information. Only information related to changes in the previously approved product would be required, avoiding unnecessary paperwork. Section 14.4(e) would provide that a determination by MSHA would be made if additional information, samples and testing are needed to evaluate the application. Additional samples may be requested by MSHA as a result of erroneous test results as discussed below in the flame-resistance test procedures. There may be instances where MSHA would not need to conduct testing to determine the flammability of a conveyor belt based on its previous experience in testing and evaluating similar belts. An applicant may also provide a statement of MSHA for consideration which explains the reasons why flame testing of a conveyor belt is not necessary in a given case.

Section 14.5 Test samples.

Section 14.5, derived from § 18.6(g) and (h), would require that three unrolled, flat samples of conveyor belt, 60 inches (152.4 cm) long by 9 inches (22.9 cm) wide, be submitted for flame testing when requested by MSHA. The test for flame resistance would require that three samples be tested to determine acceptable performance. The purpose of providing the samples in an unrolled, flat state is to prevent difficulty in mounting samples for testing. If samples would be received in a rolled (coiled) state, additional time would be needed for MSHA to flatten the samples for subsequent mounting.

Curling of samples can cause erroneous test results and has, at times, presented a problem during testing. MSHA and BOM have determined that most of this curling effect resulted from the conveyor belts having a "pre-set" from being rolled prior to testing. The requirements of § 14.5 along with the preconditioning of samples in § 14.22(a)(1) have been designed to address and minimize this problem.

Section 14.6 Issuance of approval.

This section is derived from existing § 18.10 and would specify the actions to be taken by MSHA upon review of applications for approval of conveyor belts.

Paragraph (a) would require MSHA to issue, following completion of the evaluation and testing of a conveyor belt provided for under this part, a written notice of approval or the reason for denying approval of the product.

Paragraph (b) would retain the provision of existing § 18.10(c) that an applicant is not to advertise or otherwise represent a conveyor belt as approved until MSHA has issued an approval for that product.

Section 14.7 Approval marking and distribution record.

This section is derived from existing § 18.65(f), with modifications, and would provide for the marking of approved conveyor belts and the retention of initial sale records.

Paragraph (a) would clarify the Agency's policy that approved products be marketed only under the name specified in the approval. This provision, common to all products bearing an MSHA approval, would ensure that the product is easily identifiable as one to which the approval applies.

The provisions of paragraph (b) would require a legible and permanent approval marking to be at least ½-inch (1.27 cm) high, at intervals not exceeding 60 feet (18.3 m), and repeated at least once every foot (30.5 cm) across the width of the belt. They are modified in part from the existing § 18.65(f). This modification in marking is being proposed to allow for greater ease of identification of a conveyor belt in use. As the belt passes along the conveyor framework, the edges can wear. The resulting fraying of conveyor belts which occurs during normal use can cause the approval markings on these belts to be illegible. The relocation of the markings from the edge of the belt to across its width would permit identification of the conveyor belt for a longer time period.

The proposal would specify that the approval marking be repeated at least once every foot (30.5 cm) across the width of the belt. This would ensure that a portion of the making would be present should a belt be worn along the edges or cut into narrower widths. The proposed change to a 60-foot (18.3 m) distance between the approval markings would correspond to the present requirement that the approval marking be placed at 30-foot (9.1 m) intervals

alternately along the edges of the belt. For example, when placing markings according to the present requirement at the 30 foot (9.1 m) intervals alternately along the edges of a belt, the distance between the marking along one edge of a belt is 60 feet (18.3 m).

The proposed change from the existing requirement of metal stencils used during the vulcanizing process to produce depressed letters, to the requirement that the approval marking be "legibly and permanently marked" would provide flexibility in marking and allow for technological advances in the manufacturing process for conveyor belts. This proposed modification acknowledges current manufacturing procedures and materials that allow conveyor belts to be manufactured without including the vulcanizing process.

Paragraph (c) would retain the existing provision that allows MSHA to accept permanent marking other than that described in paragraph (b) where the conveyor belt construction does not permit such marking.

Paragraph (d) would require applicants to maintain records of the initial sale of each belt having an approval marking. These sale records would be expected to be maintained for the projected service life of the belts, as determined by the applicant. This approach recognizes that the life of a belt varies depending on factors such as its physical characteristics, use as a main line or section belt, the type of material being transported and belt maintenance. Since belts in service may need to be traced for corrective action, it is necessary to have records of the belts as long as they are in use. Maintaining records on the sale of belts would be necessary so that deficient products which may present a hazard to miners can be traced and withdrawn from use until appropriate corrective action could be taken by the approval-holder. The proposal does not specify the type of record to be maintained. MSHA believes most manufacturers would use existing record systems to fulfill this requirement. The information that would be needed on initial sales would be the customer name and address and belt identification on a batch or lot basis.

Section 14.8 Quality assurance.

The provisions of proposed § 14.8 are new for conveyor belts. However, they are very similar to provisions contained in other recent MSHA regulations concerning approval of products for use in underground mines. The MSHA approval label is relied upon in the mining community as an indication that the product is safe for use in mines. Section 14.8 would set forth the elements of a quality assurance program which MSHA believes are essential to ensure the required level of flame resistance can be expected from any conveyor belts distributed.

Under § 14.8(a) of this proposed rule, the approval-holder would be required to flame test a sample of each batch or lot of conveyor belt or inspect, test, or both, a sample of each batch or lot of the materials that contribute to the flame-resistance characteristic to ensure that the finished product will meet the flame test.

Section 14.8(b) would require that instruments used for the inspection and testing in § 14.8(a) be properly calibrated and sufficiently accurate. The minimum frequency of calibration that would be required is that recommended by the instrument manufacturer and the calibration would need to be traceable to standards set by the National Institute of Standards and Technology (formerly National Bureau of Standards), U.S. Department of Commerce, or other nationally recognized standards. The instruments used would be required to be accurate to at least one significant figure beyond the desired accuracy. The use of instruments to such degree of accuracy would be consistent with testing protocol.

Section 14.8(c) would require that production documentation be controlled so that the conveyor belt is manufactured as approved. While many constructions and formulations would meet the technical requirements of this proposal, the conveyor belt that is manufactured and distributed under an approval must conform to the specifications to which the approval was issued. This aspect of the proposal would require approval-holders to ensure that the conveyor belt produced does not differ from the conveyor belt approved by MSHA. The proposal does not specify which documents must be controlled, but would instead obligate each approval-holder to implement document control procedures to ensure that the product conforms to the approval.

In MSHA's present conveyor belt acceptance program, the manufacturer is obligated to maintain the quality of the accepted conveyor belts. Manufacturers already have quality control programs which monitor the production of accepted conveyor belts and therefore, no additional cost is anticipated from these provisions.

Adherence to the proposed requirements for quality assurance would provide substantial protection against the distribution of defective conveyor belts. However, MSHA recognizes that this could occur. In such an event, § 14.8(d) would require the approval-holder to report immediately to the Agency any knowledge that conveyor belts have been distributed which do not meet the requirements upon which the approval is based. This knowledge could come from the results of audits conducted by the approval-holder, reports from users, or other sources. Upon receiving such a report, MSHA would work with the approval-holder to implement appropriate corrective action.

Since conveyor belts not meeting the technical requirement of this part could create a hazard, immediate notification should be by expeditious means, such as by telephone. The notification should include a description of the nature and extent of the problem, the locations where the conveyor belt has been distributed, and the approval-holder's plans for corrective action. Corrective action may include recalling the conveyor belt or restricting its use pending conformance with the approval specifications. MSHA would review all the information provided, including the approval-holder's program of corrective action. MSHA would work with the approval-holder, if necessary, to develop an appropriate program. If appropriate corrective action cannot be agreed upon by the approval-holder and MSHA, the Agency may seek revocation of the approval, or other action as necessary.

Section 14.9 Disclosure of information.

This section is derived from existing § 18.9 and addresses the disclosure of information on conveyor belts tested and evaluated under part 14. MSHA intends to continue the current practice of treating information on product specifications and performance as proprietary information and will protect its disclosure to the fullest extent consistent with The Freedom of Information Act (FOIA, 5 U.S.C. 522). Under § 14.9(b) of the proposed rule, MSHA would notify the applicant of requests for product information received by the Agency and provide the manufacturer the opportunity to present its position on disclosure. Information identified by the manufacturer as proprietary would not be disclosed, unless, as provided by FOIA, MSHA determines that disclosure would further the public interest and would not impede the discharge of any of the functions of the Agency.

Section 14.10 Post-approval product audit.

This section, also new, would provide for approved conveyor belts to be subject to periodic audit by MSHA for the purpose of determining conformity with the technical requirements upon which the approval was based. A consistent approach on the issue of product audits with that outlined in parts 7 (Product testing by applicant or third party) and 15 (Requirements for approval of explosives and sheathed explosive units) would be maintained by this section. This aspect of the proposed rule, by providing a mechanism for independent evaluation by MSHA of approved products on a random basis, would complement the quality assurance provisions that would require approval-holders to manufacture their conveyor belts as approved. Moreover, it would be consistent with recommendations from interval reviews of MSHA's approval program. Approved conveyor belts audited by MSHA would be selected by the Agency as representative of those distributed for use in mines. Upon request, a final report of such audits would be provided to the approval-holder.

In determining which approved conveyor belts would be subject to audit at any particular time, MSHA would consider a variety of factors such as whether the manufacturer has previously produced the approved product or similar products, whether the approved product is new or part of a new product line, or whether the approved product is intended for a unique application or limited distribution. Other considerations may include product complexity, the manufacturer's previous conveyor belt audit results, product population in the mining community and the time since the last audit or since the conveyor belt was first approved. Use of these factors would be consistent with the approach taken in all of MSHA's other approval programs where approved products are audited.

Under this proposed rule, approved conveyor belts could be obtained for audit from the approval-holder or from sources other than the manufacturer, such as mine suppliers or distributors. The provisions of paragraph (b) would, however, require the approval-holder to provide, at MSHA's request, three samples of an approved conveyor belt of the size needed for flame testing at no cost to MSHA for an audit. Such requests, except for cause, would be made no more than once a year. The Agency would examine, evaluate and conduct any testing necessary when requesting an approved conveyor belt for audit from the approval-holder. Approval-holders would be notified by MSHA of the time for any audit-related testing of approved conveyor belts to allow them an opportunity to witness such tests. MSHA could obtain conveyor belts for audit from the approval-holder or other sources, such as mine suppliers or distributors at any time at MSHA expense.

Based on MSHA's experience, the Agency anticipates few instances in which more than this quantity of approved conveyor belts would be required "for cause" from any one manufacturer in any one year. There are circumstances, however, under which an additional audit would be appropriate to ascertain compliance with the technical requirements upon which an approval was based. Examples of such circumstances include verified complaints about the safety of an approved belt, evidence of unapproved changes to belts, audit test results that warrant further testing to determine compliance, and evaluation of corrective action taken by an approval-holder. Under these circumstances, the approval-holder would be required to provide, at no cost to MSHA, additional approved conveyor belts so the Agency can ensure that the approval-holder is meeting the obligation to manufacture the product as approved.

Should discrepancies be found during MSHA audits of approved conveyor belts, MSHA would require that the manufacturer take all necessary corrective actions. These actions could include, but are not limited to, the approval-holder recalling the lot, batch, or roll of conveyor belt; or issuing user notices. Revocation of the approval by MSHA may result when discrepancies in approved products are not successfully corrected.

Section 14.11 Revocation.

Section 14.11 is derived from existing § 18.16, as well as § 7.9 and § 15.11. It would be identical to the revocation provisions in other recent approval regulations as MSHA believes that all approval-holders must be accorded the same rights and subject to the same process regardless of the approval regulations under which the approval was granted.

The proposed rule would provide that MSHA may revoke an approval granted under part 14 whenever a conveyor belt fails to meet the technical requirements specified in this part or creates a hazard when used in a mine. The Agency recognizes that an MSHA approval is important to the marketability of a product used in the mining industry. For this reason, it has been MSHA's practice to treat approval-holders as "licensees" under the Administrative Procedure Act (APA, 5 U.S.C. 558). Consistent with this practice, the proposed rule would provide that approval-holders be accorded certain protection prior to revocation of an approval. This protection would include being provided with (1) a written notice of the Agency's intent to revoke a product approval, with an explanation of the reasons for the proposed revocation, (2) an opportunity to demonstrate or achieve compliance with the technical requirements for approval, and (3) an opportunity for a hearing upon request.

Paragraph (d) would permit MSHA to suspend an approval without prior notice to the approval-holder, if a conveyor belt poses an imminent hazard to the safety or health of miners. Under such circumstances, an approval could be suspended immediately to protect the safety and health of any affected miner. If during the manufacturing of a certain lot of belting, specifications have been so altered that the belt's flame resistance has been rendered ineffective or flammability is increased, an imminent hazard may arise. Upon suspension of an approval, the conveyor belt involved is no longer approved and MSHA will require mine operators to withdraw the conveyor belt from use during the course of any suspension. MSHA would also immediately advise the affected approval-holder of any suspension so effective corrective action could be started as soon as possible. The provisions of this paragraph, as proposed, are in accord with the APA.

Subpart B—Technical Requirements

Section 14.20 Flame resistance

This section is based upon joint work of BOM and MSHA to develop a revised test for flame resistance that would be more representative of the mining environment than the present test specified in § 18.65. It would require that conveyor belts be flame resistant when tested in accordance with the flame test specified in § 14.22.

Section 14.21 Belt flame test apparatus.

This section describes the principal parts of the apparatus used for the flame test of conveyor belts. Copies of drawings which depict some aspects of the test apparatus would be available from MSHA upon request.

Paragraph (a) would require a horizontal test chamber (tunnel) 5.5 feet (1.68 m) long by 1.5 feet (0.46 m) square (inside dimension) which is constructed from 1-inch (2.5 cm) thick Marinite I, or

equivalent insulating material. Marinite I was selected because it is a noncombustible, insulating material that minimizes thermal losses through the walls and is able to withstand repeated test fires without cracking or warping. The chamber dimensions were established based upon comparison of test results with the large-scale belt flammability studies. Paragraph (b) describes a 16-gauge (0.16 cm) stainless steel duct section, tapering over at least a 24-inch (61 cm) length and lined with ½ inch (1.27 cm) thick ceramic blanket insulation or equivalent insulating material, that would connect the test chamber to a 1-foot (30.5 cm) diameter exhaust duct, or equivalent. Stainless steel would minimize corrosion and the tapered duct section would provide a smooth airflow to enter the exhaust duct. The tapered duct is lined with blanket insulation to minimize high duct temperatures and thermal expansion.

Paragraph (c) would require a U-shaped gas-fueled impinged jet burner igniting source. The U-tube would measure 12 inches (30.5 cm) long and 4 inches (10.2 cm) wide with two parallel rows of 6 jets each. The burner jets are canted so that they point toward each other in pairs and the flames from these pairs impinge upon each other. The burned fuel would be methane or natural gas of suitable purity. This burner was chosen because it is commercially available and provides a reliable, reproducible ignition source that can burn methane or natural gas. Use of the specified burner and gaseous fuel, in conjunction with the other parameters, resulted in agreement between the laboratory-scale (tunnel) test results with the large-scale belt flammability studies.

Paragraph (d) would require a removable steel rack, consisting of 2 rails and supports constructed from slotted angle iron, to hold a belt sample. The rack dimensions of 7 inches (17.8 cm) wide, 60 inches (152.4 cm) long and 5 inches (12.7 cm) between the rails would be specified in the proposal. MSHA and BOM consider these dimensions to be critical to the repeatability of the flammability tests. Typically, commercially available, 1-inch (2.5 cm) by 1¾ inch (4.4 cm) by ⅛ inch (0.3 cm) thick angle iron with predrilled ¼ inch (0.6 cm) diameter holes spaced 1-inch (2.5 cm) apart would be used. The top surface of the rack would be 8 ± ⅛ inches (22.9 ± 0.3 cm) from the inside roof of the test chamber. The rack materials and dimensions were selected so that the rack would adequately support the belt sample, withstand repeated tests with only minor warping due to heat and minimize the thermal mass due to the sample support method. The distance from the top surface of the rack to the inside roof of the test chamber was established based on comparison of the test results with the large-scale belt flammability studies.

Section 14.22 Test for flame resistance of conveyor belts

Paragraph (a) would specify the test procedures to be followed to determine the flame resistance of conveyor belts. It would specify that the test be conducted in the sequence described, as well as require the use of a flame test apparatus meeting the specifications of § 14.21. Paragraph (a)(1) would require 3 belt samples, 60±¼ inches (152.4±0.6 cm) long by 9±⅛ inches (22.9±0.3 cm) wide. The belt samples would be preconditioned by being laid flat at 70±10 °F (21±5 °C) for at least 24 hours prior to the test. The number of samples and the sample dimensions are based on comparison of the test results to the large-scale belt flammability studies. Preconditioning of the samples by laying them flat at 70±10 °F (21±5 °C) for a least 24 hours ensures that the samples are at laboratory temperatures, facilitates sample mounting and minimizes curling during the test. A conveyor belt that has been rolled prior to testing is more likely to rebound to the rolled position during testing. This action is considered "curling" and may lead to erroneous test results. Samples which have been rolled prior to testing can develop sufficient curling forces to overcome the holding capabilities of the cotter pins installed to retain the sample on the rack. Should curling occur, MSHA would be required to test additional samples to ensure reliable test results have been obtained. MSHA and BOM have determined, through their joint testing experience, that the use of flat, unrolled samples greatly reduces the occurrence of this phenomenon.

Paragraph (a)(2) would require that the belt sample be placed on the rails of the rack with the load bearing cover (top cover) up, as appropriate. In some cases, a belt may be constructed without having a designated top cover and would be mounted without regard to cover orientation. For example, many PVC belts are constructed with a solid woven carcass such that a top or bottom cover is not designated. Therefore, either side of the belt could be mounted as the load bearing cover. The sample would extend 1±⅛ inch (2.5±0.3 cm) beyond the front of the rails and about inch (2.5 cm) from the outer lengthwise edge of each rail. This would center the longitudinal axis of the sample along the centerline of the rack with about the first inch of the sample in the ignition area and not in contact with the rack. The 1-inch (2.5 cm) overlap facilitates ignition of the belt sample by minimizing the thermal heat sink created by the sample rack. A greater overlap would result in the sample curling or pulling back from the burner during the ignition period.

Paragraph (a)(3) would require that the belt sample be fastened to the rails of the rack by drilling (or punching) holes along the long edges of the sample and using square steel washers and cotter pins as fasteners. Each washer is typically ¾ inch (1.9 cm) square and 1/16 inch (0.2 cm) thick with a 3/16 inch (0.5 cm) diameter hole. A washer is placed over each sample hole and a cotter pin is inserted through the hole in the belt and rail. The cotter pin is spread apart to secure the sample to the rail. The locations of the fasteners were chosen so that the majority (6 of 10) would be in the ignition area to minimize the belt sample pulling away from the burner, or lifting and curling during the ignition period. Additional fasteners could be used in the ignition region for belts that lift excessively. The fasteners would facilitate the secure mounting of the belt sample. They are not of such size to influence the test results due to heat absorption, even if additional fasteners are used.

Paragraph (a)(4) would require that the rack and mounted sample be centered in the test chamber with the front end of the sample 6±½ inches (15.25±1.27 cm) from the entrance of the chamber. This location was selected to reduce the disturbance of the airflow entering the test chamber and was also based on comparison of the test results to the large-scale belt flammability studies.

Paragraph (a)(5) would require the airflow passing over the belt sample to be 200±20 ft/min (61±6 m/min) as measured by a nominal 4-inch (10.2 cm) diameter vane anemometer, or equivalent device, placed on the centerline of the belt about 1 foot (30.5 cm) from the chamber entrance. The airflow and measuring location were selected based on comparison of the test results with the large-scale belt flammability studies.

Paragraph (a)(6) would require that before the start of a test, the inner surface temperature of the chamber roof measured at points approximately 6, 30, and 60 inches (15.2, 76.2, and 152.4 cm) from the front entrance not exceed 95 °F (35 °C) at any of these points with the specified airflow passing through the chamber. The temperature of the air

entering the chamber during a test would also be required to be not less than 50 °F (10 °C). These temperature limits were selected to assure the reproducibility of the test results and to maintain the comparison obtained with the large-scale belt flammability studies.

Paragraph (a)(7) would specify the burner to be positioned in front of the belt sample's leading edge such that, when ignited, the flames from the two rows of jets impinge in front of the belt's edge and distribute uniformly on the top and bottom surfaces of the sample. This alignment of the burner would provide for uniform heating of the sample, which is necessary to maintain the consistency of the test results.

The exact burner orientation to provide for uniform distribution of flame on the top and bottom surfaces of the test sample may vary depending upon the belt sample's thickness. Based upon comparison tests and experience gained in developing the proposed flame test procedure, the burner must be canted downward, at about a 15° angle, and located about ¾-inch (1.9 cm) in front of the sample's leading edge. Tilting of the burner compensates for the buoyancy of the burner flames. The burner alignment to be used may be determined by experimental means prior to igniting the samples under test.

Paragraph (a)(8) would require that the gas flow to the burner be adjusted to 1.2 ± 0.1 standard cubic feet per minute (SCFM) (34 ± 2.8 liters per minute) and be maintained at this value throughout the ignition period. One standard cubic foot is defined as the amount of gas which occupies one cubic foot at 72 °F and one atmosphere pressure (1 cubic liter at 22 °C and 101 kPa). The specified gas flow provides a stable flame and was selected based on comparison of the test results with the large-scale belt flammability studies.

Paragraph (a)(9) would require that the burner flame be applied to the front edge of the belt sample for an ignition period of 5.0 to 5.1 minutes. At the conclusion of the ignition period, the burner would be lowered and its flame extinguished. This ignition period was based on comparison of the test results with the large-scale belt flammability studies.

After completion of the test, paragraph (a)(10) would require the undamaged portion across the entire width of the sample be determined. Blistering, without charring, would not be considered damage since blistering could result from the effects of heat rather than the presence of flame. Determining the undamaged portion across the entire width of the sample is necessary for specifying acceptable performance.

Paragraph (b) would require, for acceptable belt performance that each of the tested samples exhibit an undamaged portion across its entire width. This criteria was established based on comparison of the test results with the large-scale belt flammability studies.

Paragraph (c) would specify that MSHA reserves the right to modify the test requirements for flame resistance of conveyor belts constructed with thicknesses of more than ¾-inch (1.9 cm). Extensive flame testing of belts of this thickness (more than ¾-inch (1.9 cm)) has not been conducted because insufficient quantities of these belts have been available for testing. Therefore, the test results cannot be sufficiently predicted. As information becomes available, MSHA may need to modify the testing apparatus and procedures to provide comparison of test results between the large-scale belt flammability test and the tests specified in this subpart for belts with thicknesses of more than ¾-inch (1.9 cm).

Section 14.23 New technology.

This section is derived from existing § 18.20(b). The wording would be consistent with that used for the new technology provisions in parts 7 and 15 and would allow MSHA to approve a conveyor belt which incorporates technology for which the requirements of this part are not applicable, provided the Agency determines that the conveyor belt is as safe as those which meet the requirements of this part.

Part 75—Conforming Amendments

The proposal to MSHA's current requirements for acceptance of conveyor belts as flame resistant would also necessitate certain conforming amendments to the agency's safety standards for underground coal mines in 30 CFR part 75. Currently, MSHA's standard at § 75.1108 requires that all conveyor belts purchased for use underground be flame resistant according to specifications established by the Secretary. Further, § 75.1108–1 specifies that conveyor belts which are approved as flame resistant under part 18 meet the requirements of § 75.1108. The proposal would modify these existing standards to require the acquisition of conveyor belts evaluated by MSHA as flame resistant under the revised flame test.

The revised test, as discussed earlier, would identify conveyor belts that are both difficult to ignite and also self-extinguishing under the test conditions. Therefore, conveyor belts passing the revised test would not only be resistant to ignition, but also highly resistant to flame propagation.

Several benefits are expected to accrue from the use of belts meeting the revised flame resistance test. These belts would reduce the number of fires in belt entries because propagation of fire would be severely limited. In turn, the probability that combustibles in the belt entry would ignite would be reduced.

MSHA believes that the fires that do occur in belt entries would be more quickly extinguished because the belt would not readily contribute to fire propagation. The severity of the fire and it potential for exposing miners to hazards would thus be reduced. Therefore, belts meeting the revised flame resistance test would reduce the number and the size of fires in the belt entry and, in so doing, the potential for disaster.

As set out in the proposal, the revisions to part 75 would take effect in two stages. The proposed timetable is intended to introduce conveyor belt that has demonstrated increased flame-resistant qualities soon after the product is anticipated to be commercially available. Further, it would replace part 18 belt with belts meeting the revised test as belts are purchased for use in mines on and after a proposed date. This parallels the existing § 75.1108 statutory requirement which states that belt purchased for use in mines on and after a specified date be flame resistant.

The first change to part 75 would become effective at the same time that the revised approval requirements for conveyor belts in part 14 would take effect, i.e., 60 days after publication of the final rule. The proposal would amend § 75.1108–1 to state that, in addition to belts accepted as flame resistant under part 18, conveyor belts approved or accepted by MSHA as flame resistant using the revised flame test under either part 14 or the voluntary acceptance program would meet the requirements of § 75.1108. This modification explicitly would acknowledge the acceptability of a belt which passes the revised flame test as complying with the specifications of the Secretary. The conveyor belts which would be evaluated and accepted under the voluntary acceptance program have demonstrated a much higher degree of flame resistance compared to belts tested under § 18.65. For this reason, MSHA would consider belts accepted under the voluntary program to be comparable to belts approved under proposed part 14 and thus permitted to be used underground.

The second phase, being proposed now, would take effect one year later. At

that time, § 75.1108–1 would be amended by adding a new paragraph to require that all conveyor belts purchased for use in underground coal mines on and after one year from the effective date of part 14 be approved by MSHA as flame resistant under part 14 or accepted by MSHA as flame resistant under the voluntary acceptance program. Mine operators would be able to use part 18 approved belt inventories in their possession which were purchased prior to one year from the effective date of the final rule. After that inventory of part 18 belts is exhausted and existing part 18 belts wear out, the operator would be required to purchase belts meeting the revised flame test.

MSHA believes that a one year period would provide sufficient time for conveyor belt manufacturers to produce and make available to mine operators commercial quantities of conveyor belt meeting the revised flame test. This belief is based upon several factors. Belt manufacturers have been aware of, and monitoring the development of, a revised flame test for conveyor belts since BOM and MSHA initiated their belt fire studies in 1985. As the Government's work on the revised test progressed, belt producers were engaged in research and development to formulate belts that would pass a revised test addressing propagation of fire.

On January 19, 1989, MSHA held a public meeting to discuss the development of a revised laboratory-scale flame resistance test (54 FR 1802). At that time, the Agency, in conjunction with BOM, announced its willingness to test belts using the laboratory scale belt flame test apparatus at no charge. Many manufacturers have submitted samples of their conveyor belts to BOM and MSHA for this testing. As of December 1, 1991, fifteen manufacturers have had one or more different belt constructions demonstrate the ability to pass the revised test for flame resistance. These include both rubber and PVC formulations.

In addition, as indicated earlier, MSHA is implementing a voluntary acceptance program to evaluate the flame resistance of conveyor belt using the revised flame test set out in the proposal. MSHA would require belts meeting the performance criteria after testing to be marked with an acceptance number. The acceptance number would identify those belts as meeting the revised flame resistance test. The agency is aware that some manufacturers have already received orders from mine operators for belts which would pass the revised test. Further, when compatible belts identified by MSHA as having passed the revised flame resistance test become commercially available, mine operators with granted modifications under § 75.326 to use belt air to ventilate will be required to purchase belts meeting the revised test.

The Agency anticipates that manufacturers' participation in the voluntary program will result in sufficient quantities and types of improved flame-resistant conveyor belt being available for purchase by mine operators after one year. However, MSHA solicits information specifically from manufacturers on whether this time period is adequate to supply mine operators with the kind and quantity of belt needed for use in underground coal mines.

Derivation Table

The following derivation table lists: (1) Each section number of the proposed rule (New Section) and (2) the section number of the existing standard from which the proposed section is derived (Old Section).

New section	Old section
14.1	18.1.
14.2	18.2.
14.3	18.9(a).
14.4	18.6.
14.5	18.6(g) and 18.6(h).
14.6	18.10.
14.7	18.65(f).
14.8	New.
14.9	18.9.
14.10	New.
14.11	18.16.
14.20	New.
14.21	New.
14.22	New.
14.23	18.20(b)

Distribution Table

The following distribution table lists: (1) Each section number of the existing standard (Old Section) and (2) each section number of the proposed part 14 (New Section).

Old section	New section
18.1	14.1.
18.2	14.2.
18.6	14.4 and 14.5.
18.9	14.3 and 14.9.
18.10	14.6.
18.16	14.11.
18.20(b)	14.23.
18.65(f)	14.7.

IV. Executive Order 12291 and Regulatory Flexibility Act

In accordance with Executive Order 12291, MSHA has prepared an analysis to identify the potential costs and benefits associated with subpart B. This analysis has formed the basis for the Preliminary Regulatory Impact Analysis (PRIA). In this analysis, MSHA has determined that this rule neither results in major cost increases nor has an effect of $100 million or more on the economy. A copy of the PRIA is available upon request.

MSHA estimates that the annual cost of the proposed rule to mine operators would be between $6.7 million and $8.2 million. As belt manufacturers incur increased research and development cost, their cost would be about $1.2 million the first year, $467,000 the second year, and about $36,500 each year thereafter.

There have been 307 reportable fires in underground coal mines since 1970. Of these, 42 fires involved the conveyor belt and as much as 2,000 feet (600 m) of belt has burned before a fire could be extinguished. One miner suffered a fatal heart attack fighting a conveyor belt fire. Another miner suffered a non-fatal heart attack and several miners have had to be hospitalized and treated for smoke inhalation. The conveyor belt meeting the revised test is expected to be difficult to ignite and extremely resistant to flame propagation. Thus, the number and size of fires in the belt entry will be reduced, as will the potential for disaster.

The Agency has not proposed exemption of small mines from any provision of the proposal. Of the approximately 1,800 underground coal mines affected by the proposed rule, MSHA estimates that 969 are small businesses employing fewer than 20 miners. The annual cost of compliance per miner is estimated to be between $50 and $70 in a small underground coal mine. This cost represents less than 0.095 percent of the average small mines value of shipments.

The Agency solicits comments and data on how the proposed rule would affect all belt manufacturers and all underground coal mines, including small manufacturers and small mine operators. In particular, MSHA requests information on: (1) The quantity of belt currently in use that would pass the proposed test; (2) the size of the market for used underground conveyor belt; (3) the cost of belt that will pass the revised flame test ("new" belt) versus belt that passes the current flame test ("old" belt); (4) whether costs of the "new" belt will decline as production increases and by how much; and (5) whether "new" belts are compatible with "old" belts, with existing hardware, and whether PVC and rubber belts can be spliced together.

V. Metric Measurements

Under section 5164 of the Omnibus Trade and Competitiveness Act of 1988, MSHA intends to begin providing both

metric and English specifications in its rules to assist industry in converting to metric measurements where appropriate. In most cases, the conversion from English units to metric units was made by rounding to one decimal place. However, where tolerances are indicated, rounding of the metric measurement was made to two decimal places to keep the numbers within tolerances. MSHA requests comments on the metric conversion and equivalences of the English inch-pound measurements in this proposed rule.

List of Subjects in 30 CFR Part 14

Approval of equipment, Mine safety and health, Underground mining.

Dated: December 18, 1992.

William J. Tattersall,

Assistant Secretary for Mine Safety and Health.

It is proposed that chapter I of title 30, of the Code of Federal Regulations be amended as follows:

1. Add a new part 14 to subchapter B chapter I, title 30 of Code of Federal Regulations to read as follows:

PART 14—REQUIREMENTS FOR APPROVAL OF FLAME-RESISTANT CONVEYOR BELT

Subpart A—General

Sec.

14.1 Purpose and effective date.
14.2 Definitions.
14.3 Observers at tests and evaluations.
14.4 Application procedures and requirements.
14.5 Test samples.
14.6 Issuance of approval.
14.7 Approval marking and distribution records.
14.8 Quality assurance.
14.9 Disclosure of information.
14.10 Post-approval product audit.
14.11 Revocation.

Subpart B—Technical Requirements

14.20 Flame resistance.
14.21 Belt flame test apparatus.
14.22 Test for flame resistance of conveyor belts.
14.23 New technology.

Authority: 30 U.S.C. 957.

Subpart A—General

§ 14.1 Purpose and effective date.

This part establishes the flame resistance requirements for MSHA approval of conveyor belts for use in underground mines. Applications for approval or extension of approval submitted after [60 DAYS FROM PUBLICATION OF THE FINAL RULE] shall meet the requirements of this part.

§ 14.2 Definitions.

The following definitions apply in this part.

Applicant. An individual or organization that manufactures or controls the production of a conveyor belt and that applies to MSHA for approval of that conveyor belt.

Approval. A document issued by MSHA which states that a conveyor belt has met the requirements of this part and which authorizes an approval marking identifying the conveyor belt as approved.

Conveyor belt. A flexible strip of material typically constructed of interwoven or fabric plies and polymeric compounds which is used to transport coal or other extracted minerals.

Extension of approval. A document issued by MSHA which states that the change to a product previously approved by MSHA under this part meets the requirements of this part and which authorizes the continued use of the approval marking after the appropriate extension number has been added.

Load bearing cover. The cover of a conveyor belt upon which extracted minerals are conveyed.

Post-approval product audit. Examination, testing, or both, by MSHA of an approved conveyor belt selected by MSHA to determine whether it meets the technical requirements and has been manufactured as approved.

§ 14.3 Observers at tests and evaluations.

Only personnel of MSHA and the Bureau of Mines, U.S. Department of the Interior, representatives of the applicant and such other persons as agreed upon by MSHA and the applicant shall be present during tests and evaluations conducted under this part.

§ 14.4 Application procedures and requirements.

(a) *Application.* Requests for an approval or an extension of an approval under this part shall be sent to: U.S. Department of Labor, Mine Safety and Health Administration, Approval and Certification Center, P.O. Box 251, Industrial Park Road, Triadelphia, West Virginia 26059.

(b) *Fees.* Fees calculated in accordance with part 5 of this title shall be submitted in accordance with § 5.40.

(c) *Approval.* Each application for approval of a conveyor belt shall include the following, except that any document which is the same as the one listed by MSHA in a prior approval need not be submitted. Such documents shall be noted in the application.

(1) A technical description of the conveyor belt which includes—

(i) Trade name or identification number;

(ii) Cover compound type and designation number;

(iii) Belt thickness and thickness of top and bottom covers;

(iv) Presence and type of skim coat;

(v) Presence and type of friction coat;

(vi) Carcass construction (number of plies, solid woven);

(vii) Carcass fabric by textile type and weight (ounce per square yard);

(viii) Presence and type of breaker or floated ply; and

(ix) The number, type and size of cords for metal cord belts.

(2) Formulation information on the compounds in the conveyor belt by either—

(i) Specifying each ingredient by its chemical name along with its percentage (weight) and tolerance of percentage range, or;

(ii) Specifying each flame retardant ingredient by its chemical or generic name with its percentage and tolerance or percentage range or its minimum percent. List each flammable ingredient by chemical, generic, or trade name along with the total percentage of all flammable ingredients. List each inert ingredient by chemical, generic, or trade name along with the total percentage of all inert ingredients.

(3) The name, address and telephone number of the applicant's representative responsible for answering any questions regarding the application.

(4) Identification of any similar conveyor belt for which the applicant already holds an approval by including—

(i) The MSHA assigned approval number of the conveyor belt which most closely resembles the new one, and

(ii) An explanation of any changes from the existing approval.

(d) *Extension of approval.* Any change in an approved conveyor belt from the documentation on file at MSHA that affects the technical requirements of this part shall be submitted for approval prior to implementing the change. Each application for an extension of approval shall include—

(1) The MSHA-assigned approval number for the conveyor belt for which the extension is sought;

(2) A description of the proposed change to the conveyor belt; and

(3) The name, address, and telephone number of the applicant's representative responsible for answering any questions regarding the application.

(e) MSHA will determine if testing, additional information, samples, or material are required to evaluate an application. If the applicant believes that flame testing is not required, a

statement explaining the reasons for not testing shall be included in the application.

§ 14.5 Test samples.

Upon request by MSHA, the applicant shall submit 3 unrolled, flat conveyor belt samples for flame testing. Each sample shall be 60±¼-inches long (152.4±0.6 cm) long by 9±⅛-inches (22.9±0.3 cm) wide.

§ 14.6 Issuance of approval.

(a) MSHA will issue an approval or a notice of the reasons for denying approval after completing the evaluation and testing provided for by this part.

(b) An applicant shall not advertise or otherwise represent a conveyor belt as approved until MSHA has issued an approval.

§ 14.7 Approval marking and distribution records.

(a) An approved conveyor belt shall be marketed only under the name specified in the approval.

(b) Approved conveyor belt shall be legibly and permanently marked for the usable life of the belt with the assigned MSHA approval number. The approval marking shall be at least ½-inch (1.27 cm) high, placed at intervals not exceeding 60 feet (18.3 m) and repeated at least once every foot (30.5 cm) across the width of the belt.

(c) Where construction of the conveyor belt does not permit marking in accordance with the foregoing, other permanent marking may be accepted by MSHA.

(d) Applicants shall maintain records of the initial sale of each belt having an approval marking. The record retention period shall be at least the expected service life of the belt.

§ 14.8 Quality assurance.

Applicants granted an approval or an extension of approval under this part shall—

(a) Flame test a sample of each batch or lot of conveyor belts or inspect, test, or both, a sample of each batch or lot of the materials that contribute to the flame-resistance characteristic to ensure that the finished product will meet the flame-resistance test.

(b) Calibrate instruments used for the inspection and testing in paragraph (a) of this section at least as frequently as, and according to, the instrument manufacturer's specifications, using calibration standards traceable to those set by the National Institute of Standards and Technology, U.S. Department of Commerce or other nationally recognized standards and use instruments accurate to at least one significant figure beyond the desired accuracy.

(c) Control production documentation so that the product is manufactured as approved.

(d) Immediately report to the MSHA Approval and Certification Center, any knowledge of a conveyor belt that has been distributed that does not meet the specifications of the approval.

§ 14.9 Disclosure of information.

(a) All information concerning product specifications and performance submitted to MSHA by the applicant shall be considered proprietary information.

(b) MSHA will notify the applicant of requests for disclosure of information concerning its conveyor belts and shall give the applicant an opportunity to provide MSHA with a statement of its position prior to any disclosure.

§ 14.10 Post-approval product audit.

(a) Approved conveyor belts shall be subject to periodic audits by MSHA for the purpose of determining conformity with the technical requirements upon which the approval was based. Any approved conveyor belt which is to be audited shall be selected by MSHA and be representative of those distributed for use in mines. Upon request the approval-holder may obtain any final report resulting from such audit.

(b) No more than once a year, except for cause, the approval-holder at MSHA's request, shall make 3 samples of an approved conveyor belt available at no cost to MSHA for an audit. The approval-holder may observe any tests conducted during this audit.

(c) An approved conveyor belt shall be subject to audit for cause at any time MSHA believes that it is not in compliance with the technical requirement upon which the approval was based.

§ 14.11 Revocation.

(a) MSHA may revoke for cause an approval issued under this part if the conveyor belt—

(1) Fails to meet the technical requirements; or

(2) Creates a hazard when used in a mine.

(b) Prior to revoking an approval, the approval-holder shall be informed in writing of MSHA's intention to revoke. The notice shall—

(1) Explain the specific reasons for the proposed revocation; and

(2) Provide the approval-holder an opportunity to demonstrate or achieve compliance with the product approval requirements.

(c) Upon request, the approval-holder shall be afforded an opportunity for a hearing.

(d) If a conveyor belt poses an imminent hazard to the safety or health of miners, the approval may be immediately suspended without a written notice of the Agency's intention to revoke. The suspension may continue until the revocation proceedings are completed.

Subpart B—Technical Requirements

§ 14.20 Flame resistance.

Conveyor belts shall be flame resistant when tested in accordance with the test for flame resistance specified in § 14.22 of this part.

§ 14.21 Belt flame test apparatus.

The principal parts of the apparatus used to test for flame resistance of conveyor belts are as follows—

(a) A horizontal test chamber 5.5 feet (1.68 m) long by 1.5 feet (0.46 m) square (inside dimensions) constructed from 1-inch (2.5 cm) thick Marinite I, or equivalent insulating material.

(b) A tapered 16-gauge (0.16 cm) stainless steel duct section tapering over a length of at least 24 inches (61 cm) from a 20-inch (51 cm) square cross-sectional area at the test chamber to a 1 foot (30.5 cm) diameter exhaust duct, or equivalent. The interior surface of the tapered duct section is lined with ½-inch (1.27 cm) thick ceramic blanket insulation, or equivalent insulating material. The tapered duct must be tightly connected to the test chamber.

(c) A U-shaped gas-fueled impinged jet burner ignition source, measuring 12 inches (30.5 cm) long and 4 inches (10.2 cm) wide, with two parallel rows of 6 jets. Each jet is spaced alternately along the U-shaped burner tube. The 2 rows of jets are canted so that they point toward each other and their flames impinge upon each other in pairs. The burner fuel is at least 98 percent methane (technical grade, or natural gas containing at least 96 percent combustible gases which includes not less than 93 percent methane.)

(d) A removable steel rack, consisting of 2 parallel rails and supports that form a 7-inch (17.8 cm) wide by 60-inch (152.4 cm) long assembly to hold a belt sample. The 2 rails, with a 5-inch (12.7 cm) space between them, comprise the top of the rack. The rails are constructed of slotted angle iron with holes along the top surface. The top surface of the rack shall be 8 ± ⅛ inches (20.3 ± 0.3 cm) from the inside roof of the test chamber.

§ 14.22 Test for flame resistance of conveyor belts.

(a) *Test procedures.* The test is conducted in the following sequence using a flame test apparatus meeting the specifications of § 14.21 of this part—

(1) Lay three samples of the belt, 60±¼-inches (152.4±0.6 cm) long by 9±⅛-inches (22.9±0.3 cm) wide, flat at 70±10 °F (21±5 °C) for at least 24 hours prior to the test.

(2) For each test, place a belt sample with the load bearing cover up, as appropriate, on the rails of the rack so that the sample extends 1±⅛-inch (2.5±0.3 cm) beyond the front of the rails and about 1 inch (2.5 cm) from the outer lengthwise edge of each rail.

(3) Fasten the sample to the rails of the rack with steel washers and cotter pins of such length that at least ¾-inch (1.9 cm) extends below the rails. Equivalent fasteners may be used. Make a series of 5 holes, about 9/32-inch (0.7 cm) in diameter along both edges of the belt sample starting at the first rail hole within 2 inches (5.1 cm) from the front edge of the sample. Make the next hole about 5 inches (12.7 cm) from the first, the third about 5 inches (12.7 cm) from the second, the fourth about midway along length of sample, and the fifth near the end of the sample. After placing a washer over each sample hole, insert a cotter pin through the hole and spread it apart to secure the sample to the rail.

(4) Center the rack and sample in the test chamber with the front end of the sample 6±½ inches (15.25±1.27 cm) from the entrance.

(5) Measure the airflow with a nominal 4-inch (10.2 cm) diameter vane anemometer, or an equivalent device, placed on the centerline of the belt about 1 foot (30.5 cm) from the chamber entrance. Adjust the airflow passing through the chamber to 200±20 ft/min (61±6 m/min).

(6) Before starting, the inner surface temperature of the chamber roof measured at points approximately 6, 30, and 60 inches (15.2, 76.2, and 152.4 cm) from the front entrance of the chamber, shall not exceed 95 °F (35 °C) at any of these points with the specified airflow passing through the chamber. The temperature of the air entering the chamber during a test shall not be less than 50 °F (10 °C).

(7) Center the burner in front of the sample's leading edge with the plane, defined by the tips of the burner jets, approximately ¾-inch (1.9 cm) from the front edge of the belt.

(8) With the burner lowered away from the sample, set the gas flow at 1.2±0.1 standard cubic feet per minute (SCFM) (34±2.8 liters per minute) and ignite the gas. Maintain the gas flow throughout the ignition period.

(9) After applying the burner flame to the front edge of the sample for a 5.0 to 5.1 minute ignition period, lower the burner away from the sample and extinguish the burner flame.

(10) After completion of the test, determine the undamaged portion across the entire width of the sample. Blistering without charring does not constitute damage.

(b) *Acceptable performance.* For 3 tested samples, each sample shall exhibit an undamaged portion across its entire width.

(c) MSHA reserves the right to modify the procedures of the flammability test for belts constructed of thickness more than ¾-inch (1.9 cm) to provide agreement with results of the large-scale belt flammability tests on these belts.

§ 14.23 New technology.

MSHA may approve a conveyor belt that incorporates technology for which the requirements of this part are not applicable if the Agency determines that the conveyor belt is as safe as those which meet the requirements of this part.

PART 18—[AMENDED]

2. The authority citation for part 18 continues to read as follows:

Authority: 30 U.S.C. 957, 961.

§ 18.1 [Amended]

3. Section 18.1 is amended by revising the phrase "cables, hoses and conveyor belts" to read "cables or hoses".

§ 18.2 [Amended]

4. Section 18.2 is amended by revising the phrase "cable, hose or conveyor belt" in the definitions of "Acceptance", "Acceptance Marking", and "Applicant" to read "cable or hose" and removing the definition for "Fire-resistant".

§ 18.6 [Amended]

5. Section 18.6(a) is amended by revising the phrase "cables, hose or conveyor belt" to read "cables or hose".

6. Section 18.6(c) is removed and reserved.

7. Section 18.6(i) is amended by revising the phrase "cable, hose or conveyor belt" to read "cable or hose" and removing the words "conveyor belt—a sample of each type 8 inches long cut across the entire width of the belt."

§ 18.9 [Amended]

8. Section 18.9(a) is amended by revising the phrase "cable, hose or conveyor belt" to read "cable or hose".

§ 18.65 [Amended]

9. Section 18.65 is amended in the heading by removing the phrase "conveyor belting and" and removing and reserving paragraph (a)(1) and removing and reserving paragraph (f)(1).

10. Section 18.94(a)(2) is revised to read as follows:

§ 18.94 Application for field approval; contents of application.

(a) * * *

(2) The trade name and the flame resistance acceptance or approval number of any cable, cord, hose, or conveyor belt installed on the machine for which prior acceptance or approval by MSHA has been issued.

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PART 75—[AMENDED]

11. The authority citation for part 75 continues to read as follows:

Authority: 30 U.S.C. 811, 957, 961.

12. Revise § 75.1108–1 to read as follows:

§ 75.1108–1 Approved conveyor belts.

(a) Effective [60 DAYS FROM PUBLICATION OF THE FINAL RULE] conveyor belts meet the requirements of § 75.1108 if they are—

(1) Approved by MSHA as flame resistant under part 14;

(2) Accepted by MSHA as flame resistant under the voluntary acceptance program; or

(3) Accepted by MSHA as flame resistant under part 18.

(b) On and after [ONE YEAR FROM EFFECTIVE DATE OF THE FINAL RULE] all conveyor belts purchased for use in underground coal mines shall be approved by MSHA as flame resistant under part 14 or accepted by MSHA as flame resistant under the voluntary acceptance program.

[FR Doc. 92–31281 Filed 12–23–92; 8:45 am]

BILLING CODE 4510–43–M