

REPORT OF THE STANDARDS COMMITTEE*

Summary.—*Semiannual report of the Committee. The present report deals with (1) cores for 35-mm. and 16-mm. motion picture film; (2) sound-track dimensions; (3) 16-mm. sound-film sprocket; (4) definition of safety film; (5) reduction ratio for 35-mm. to 16-mm.; (6) universal perforation; and (7) "variable-area" vs. variable-width.*

The principal items under consideration by the Standards Committee at the present time are as follows:

(1) *Cores for 35-Mm. and 16-Mm. Motion Picture Film.*—Drawings for cores with dimensions and tolerances for 35-mm. and 16-mm. film have been given initial and final approval by the Standards Committee and are being published in an early issue of the JOURNAL. There are two questions in regard to these drawings on which there has been some debate:

In the first place, the tolerances adopted have been fairly large; for example, the recommended hole size for the 35-mm. core is 1.012 to 1.028 inches, whereas the maximum diameter for the shaft is 1.000 inch. This gives a possible clearance of 0.028 inch between the shaft and the inside of the core. It was the consensus, however, that this clearance made no practical difference and that a range of values was necessary in order to permit different manufacturers to use the various plastics and other materials that they find satisfactory.

The second question involved is the question of standardizing two types of cores, *viz.*, the so-called positive core and the so-called negative core. The positive core has a keyway and is intended to fit on a round shaft with a key or stud to keep the core from revolving on the shaft. The second type of core, or the so-called negative core, is intended to fit on a shaft having a keyway. This type of core, therefore, has a key molded into the core and, consequently, will not go over the round shaft. In adopting as standard only the so-called positive core, the Standards Committee realizes that for some time to come the negative cores will be used, and that possibly the change

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to the positive type of core may never occur. However, the film manufacturers and some of the apparatus producers believe it would be of benefit to the trade if a single type of core could be used, and for that reason the single standard has been adopted.

(2) *Sound-Track Dimensions*.—A thorough study of the best dimensions for the 35-mm. sound-track is being made by a committee of the Academy of Motion Picture Arts & Sciences. Our Committee is, therefore, waiting until the Academy committee has announced its findings before taking any action on this matter.

(3) *16-Mm. Sound-Film Sprocket*.—A preliminary drawing has been given initial approval and has been sent out to the various members of the Standards Committee and to various manufacturers for criticism. The principles involved in handling singly perforated film are somewhat different from those used in handling doubly perforated film. For example, with 16-mm. sound-film, it is common practice to have the sprocket-teeth entirely fill the holes, at least in the lateral dimension, and guiding of the film in the picture gate by means of the sprocket-holes is almost universal. If such guiding is used, the sprocket-teeth must be rounded with a radius of curvature greater than that used for the film, or inevitably damage will result. It is the opinion of some that it is too early to standardize on sprockets for 16-mm. sound-film and that correct sprocket design depends entirely upon the design of the projector on which it is to be used.

(4) *Definition of Safety Film*.—The Standards Committee has given initial approval to the definition and specification of safety film recommended for adoption at a meeting of the International Standards Association at Berlin on June 28, 1938. Inasmuch as there are rather important differences of opinion with regard to the advisability of approving this definition, it is included herewith in full in order that we may have a fuller discussion:

Definition.

Safety film means a film that is slow-burning and difficult to ignite.

A film is called slow-burning if its burning time for a piece of film of 30 cm. takes more than 45 seconds. For films having a thickness of less than 0.08 mm., the burning time must be more than 30 seconds. The burning time is determined according to paragraph *a*.

A film is termed difficult to ignite if it does not ignite at 300°C within 10 minutes.

Safety film must contain not more than 0.36 per cent of nitrate nitrogen.

Testing Method.

(*a*) *Testing of Burning Time.*

(1) The film is freed from emulsion in warm water and is dried in open air at 18° to 22°C and 40 to 50 per cent relative humidity for 12 hours.

(2) The sample to be tested shall be 35 cm. long, and a mark provided 5 cm. from the top.

(3) The sample to be tested shall be hung horizontally edgewise between two stretched wires, if it have two rows of perforations. The wires shall be threaded through the holes at intervals not greater than 32 mm. and in such a way that the used holes are displaced against each other. The wire shall not be thicker than 0.5 mm.

(4) The burning time is calculated from the moment when the flame reaches the mark until the sample is fully burned. This time shall be determined in three tests, immediately after drying, in a room free from air currents. No test shall give a burning time less than the fixed minimum.

Marking.

Safety film that comes up to these conditions may be marked *Safety Film* but only in connection with the name or the trade-mark of the manufacturer.

The determination of inflammability is reserved for a later meeting of ISA Committee 36.

The above definition and testing procedure constitute essentially the old Lehman burning test, with an additional specification as to the maximum amount of cellulose nitrate. This agrees with the minimum amount in the listings of the Underwriters' Laboratory, but is about half as great as the maximum amount in their listing.

(5) *Reduction Ratio for 35-Mm. to 16-Mm.*—This question is in the hands of a sub-committee under the Chairmanship of J. A. Maurer. The committee has not yet reported its findings.

(6) *Universal Perforation.*—The question of a universal perforation with the basic dimensions of the Bell & Howell and with the general shape of the positive perforation is still under study. A report by P. Arnold, Chairman of the sub-committee on this subject, is expected soon.

(7) "*Variable-Area*" vs. "*Variable-Width.*"—The question of standardizing the term *variable-area* or *variable-width* as the definitive name of one kind of sound-track has been referred to the Standards Committee by the editors of the JOURNAL. Letters were mailed to all the members of the Standards Committee asking the following questions:

(1) Whether or not the Society should standardize on one or the other of these terms.

(2) Whether in their opinion one term was more desirable than the other.

(3) Whether in their neighborhood one term was in wider use than the other term.

The replies were approximately 2 to 1 in favor of the term *variable-area* principally because that is the term in common use, although quite a number of the members indicated their belief that the term *variable-width* was somewhat more technically correct. A little over a majority of the members who replied were in favor of establishing a standard.

The letters indicated great diversity of points of view, depending mainly upon the connections of the members—whether the matter was looked at from the point of view of the film or of the recording method. It was pointed out that in the November, 1931, issue of the JOURNAL, both terms were listed in the "Glossary of Technical Terms Used in the Motion Picture Industry," and that, although the term *variable-width* may have been preferred editorial practice of the Society, nevertheless the two terms were synonymous.

The motion was made, seconded, and unanimously approved, that in the next report of the Standards Committee it be stated that the Standards Committee had canvassed the situation and had found that the term *variable-area* is more generally used than the term *variable-width*, but, however, that the two terms should be regarded as synonymous, as indicated by the Glossary of November, 1931.

E. K. CARVER, *Chairman*

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