supported the three efficiency levels as proposed, while others suggested levels different than proposed. A 90% filter efficiency level was the most frequently recommended alternative, sometimes suggested as a fourth class.

NIOSH recognizes that the efficiency requirements contained in the proposed rule are to some extent technologyforcing. However, HEPA-level respirators that perform at an efficiency level proposed under part 84 have been available for years. One commenter (a manufacturer) stated that the technology for producing 95% (Class C) efficiency level respirator is practical, reasonable, and available. This commenter further stated that a Class C respirator could be marketed at a price not exceeding the price of a 30 CFR part 11 disposable DFM respirator.

The principal advantage of a 90% efficiency class would be to permit a larger percentage of filters certified under part 11 to be certified without modification under the new part 84 tests. The best performing of the current DM and DFM respirators are expected to meet the requirements of a 95% class, but a significant number of DM respirators would not be expected to meet the requirements even of a 90% class. Limiting the minimum filter efficiency to 95% will minimize worker exposure to airborne contaminants from filter penetration. This is important because it is the most controllable element of protection afforded by respiratory protection programs. The human variables in these programs are more difficult to guarantee: that workers are provided the appropriate class of respirator; that the workers are effectively fit tested; that they achieve and maintain an effective face seal each time they wear a respirator; and that they replace disposable respirators and filters before their effectiveness is diminished. Some commenters urged, for these reasons, that all filters should have greater than 99% efficiency. Such high filter efficiency poses technologic challenges, increases costs to manufacturers and users, and increases breathing difficulty for respirator wearers. NIOSH believes that a 95% minimum efficiency best balances the public health concern and these competing considerations.

Although a number of manufacturers have indicated they are prepared now to submit filters for certification under these new test procedures, there may be some who are not. These manufacturers will have three years to develop this capacity while they continue to market their existing products.

## Section 84.171 Non-powered Airpurifying Particulate Respirators; Required Components

This section is redesignated from existing § 11.131, modified only to incorporate the new terminology of particulates to describe dusts, fumes and mists. This section is unmodified from the proposal, except for the title change.

## Section 84.177 Inhalation and Exhalation Valves; Minimum Requirements

This section is redesignated from existing § 11.137, modified only to delete reference to the silica dust tests for single-use respirators of § 11.140–5. This section is unmodified from the proposal. The respirator performance requirements of these tests are replaced by the non-powered air-purifying particulate filter efficiency level determination test contained in this rule.

## Section 84.179 Non-powered Airpurifying Particulate Respirators; Filter Identification

This section requires the identification of non-powered airpurifying particulate respirators by labeling with a new classification system for the series and efficiency of the filters. The new terminology of nonpowered air-purifying particulate respirator replaces the existing dust, fume, and mist respirator, as discussed previously.

The requirement for the manufacturer to specify the filter-series and efficiency level classification in the certification application is contained in paragraph (a). This classification would include the series of the filter and the expected efficiency of the filter based on the test requirements specified in § 84.182.

The information to be included on the label of a filter for a certified nonpowered air-purifying particulate respirator is specified in paragraphs (b)(1) through (b)(9). This labeling defines the efficiency level achieved in the performance testing (i.e., 99.97%, 99%, or 95%) and the series of the filter (i.e., N, R, or P). This information is necessary to allow the user to make an informed decision on selecting the appropriate respiratory protection.

To facilitate this selection process, the P100 filters are color coded magenta to allow them to be easily distinguished from the other filter types. The filters other than the P100 can be of any color except magenta. This color coding is consistent with the present universally accepted color code convention which identifies the best performing filters (HEPAs) by their magenta color. NIOSH has modified these labeling requirements from the proposal in agreement with the commenters who stated that the labelling should clearly state the certified efficiency rating numerically and include the series on the filter, filter package, or respirator box.

One commenter suggested that all classes of certified respirators should be color coded for user identification; another stated that the high efficiency filters of each series should be magenta. It was also requested that color coding as well as letter designation be specified for all respirators. A more complex color-coding system may add confusion to the respirator selection process. With the more descriptive classification identifying labels required by this final rule, the potential for confusion in selection of the appropriate respirator has been reduced. Therefore, NIOSH has not adopted these suggestions.

## Section 84.180 Airflow Resistance Tests

Section 84.180 is derived from § 11.140–9. It is modified to delete the final inhalation resistance requirements. The non-powered air-purifying particulate filter efficiency level determination tests are not designed to simulate loading of the filter at the worksite. Therefore, these requirements are not appropriate with the introduction of these new tests.

Paragraph (a) provides for determining the inhalation-resistance of the complete non-powered air-purifying particulate respirator. This value corresponds to the pressure drop across the complete respirator mounted on a test fixture with air drawn inward through it at a continuous rate of 85±2 liters per minute. Tolerance limits have been added to the test flow rates as suggested by commenters.

The final rule does not include final breathing resistance limits as requested in some comments. The final breathing resistances previously included in the 30 CFR part 11 requirements were based on filters loading and clogging with a silica dust. The loading experienced at actual worksites is not represented by such a test. The inclusion of final breathing resistances as part of a certification would primarily address two concerns. The first is that the breathing resistance does not exceed physiological limits or pose undue discomfort on the wearer. Wearers will replace filters before breathing resistances reach such levels. The second concern is that the filter efficiency is still at an acceptable level at the certification final resistance value. The filter efficiency level determination