THERE ARE MANY CHANGES IN THE NEW ANSI Z87.1 STANDARD.

The new ANSI Z87.1 Standard is in the final stages of approval and there are many changes incorporated in this new version that will affect the manufacture and testing of safety frames and safety lenses. Your industrial business is a profitable asset to your overall operation. The threat of lawsuits and liability issues related to eye injuries should compel all providers of safety eyewear to become familiar with and adopt the practices and procedures of the new standard, particularly since the use of thinner Rx lenses will be allowed.

TITMUS has been preparing for the changes that affect the performance testing of safety frames and we have retested all of our current safety frames and those that are in development for 2001 with 2mm lenses and will certify that they meet the requirements of the new standard. In addition, our ISO Quality Management procedures call for regularly scheduled retesting of all our products throughout their life.

We are pleased to see the change in test requirements for safety frames, because it will ensure a higher level of quality in the marketplace. Product design will require more emphasis on lens retention, which translates to improved eye protection. We understand that many of the Rx safety frames in the marketplace today will meet the new standards. We are concerned with those that will not.

Under the new standard, all manufacturers of non-plano (prescription) safety frames are required to retest their product using 2.0mm lenses in order to mark the product Z87-2. The retesting is a critical aspect of this standard for it is wrong to assume that all frames that successfully retain 3.0mm lenses will retain 2.0mm lenses with the same success.

Your responsibility under the new standard will be to ensure that the complete protector (frame and lenses) that you deliver to your industrial customers is compliant. The lens performance standards are significantly changed. There will be two levels of performance: Basic Impact Lenses which will continue to be 3.0mm (an example might be glass lenses) and the new High Impact Lenses which will be no thinner than 2.0mm (an example might be polycarbonate lenses).

The test methods for the Basic Impact Lenses are unchanged from the 1989 standard for 3.0mm lenses. However, the test methods for the High Impact Lenses are new and require your close attention. Basic Impact Lenses will continue to be type tested in the unmounted state, and the 2.0mm High Impact Lenses will be type tested. The issue of testing these lenses with the normal coatings that you apply during processing should also be taken into consideration. There are independent test facilities that will be prepared to do this certification and will assist you with additional information.

Finally, the new standard calls for a "Warning Label" that will be applied to the finished protector if it meets the Basic Impact Standards. It will be your responsibility to develop and provide it in the correct application. This warning is designed to inform the wearer of the impact limitations of the lenses and should also state that it is to be removed by the wearer.

We have summarized the changes in the new standard in this comparison chart. Please review it carefully. However, for the best source of information we urge you to obtain an actual copy of the standard from the American National Standards Institute.

LENS REQUIREMENTS	OLD ANSI Z87.1-1989	NEW ANSI Z87.1-2001
MINIMUM THICKNESS	■ Prescription Lenses 3.0mm thick except those lenses having a plus power of 3.00D or greater shall have a minimum thickness of 2.5mm. ■ Removable Plano Lenses 3.0mm thick except those lenses that withstand 45.7mps impact of 1/4 in. steel ball. Such lenses shall not be less than 2.0mm thick. ■ Non Removable Plano Lenses 3.0mm thick except plastic which can be 2.0mm thick.	■ Prescription Lenses (termed non-plano) There are two categories of lenses in the new standard; Basic Impact Non-Plano Lenses and High Impact Non-Plano Lenses. ■ Basic Impact Non-Plano Lenses shall not be less than 3.0mm thick at their thinnest point. (No change from the 1989 standards) ■ High Impact Non-Plano Lenses shall not be less than 2.0mm thick at their thinnest point. ■ Basic Impact Plano Lenses shall not be less than 3.0mm thick ■ High Impact Plano Lenses shall not be less than 2.0mm thick.
MARKING	-Manufacturer's Logo -Applicable Shade Designation -Photochromic lenses mark V after manufacturer's logo. -Special Purpose Lenses mark S -All marking is permanent	-Manufacturer's Logo -Applicable Shade Designation -Photochromic lenses mark V after manufacturer's logo -Special Purpose Lenses mark S -Z87 Complies with Basic Impact Test requirements. -Z87+ Complies with High Impact Test requirements -All marking is permanent
IMPACT	■ Prescription Lenses Lenses shall be capable of resisting impact of a 25.4mm (1 in) steel ball dropped from a height of 127cm (50 in). The lens shall not fracture. ■ Non Removable Plano Lenses Tested as complete devices with High Mass Impact and High Velocity Impact Tests.	■ Prescription Lenses (termed Non-Plano) Basic Impact Non-Plano lenses are type tested in the unmounted state and shall be capable of resisting impact from a 25.4mm (1 in) steel ball dropped from a height of 127cm (50 in). The lens shall not fracture. ■ High Impact Non-Plano lenses are type tested and subject to the High Velocity Impact Test. The lenses shall be capable of resisting impact from a 6.35mm (0.25 in) diameter steel ball traveling at a velocity of 45.7m/s (150ft/s). No piece shall be detached from the inner surface of the lens, nor shall the lens fracture. ■ Removable and Non Removable Plano Lenses Subject to the same test criteria for Basic Impact and High Impact as non-plano lenses and tested as complete devices.

FRAME REQUIREMENTS	OLD ANSI Z87.1-1989	NEW ANSI Z87.1-2001
FLAMMABILITY	■ Enforced standard to Section 15.3. The spectacles shall not continue to burn after exposure to a 50mm (2 in) flame from a 10mm (.394 in) Bunsen burner for one second.	■ The apparatus and procedure as specified in ASTM test method D635-97 shall be used to determine the flammability of plastic components. Alternatively, certification of the material used by the source of supply is acceptable. The material shall not burn at a rate greater than 76mm (3 in) per minute.
CORROSION	■ Metal parts are boiled in a 10% aqueous solution of sodium chloride for 15 min. Then immersed in the same solution at room temperature, removed and allowed to dry for 24 hrs. The metal parts are then rinsed in lukewarm water and allowed to dry. The function of the spectacles shall not be impaired by the corrosion.	■ Same as 1989 standard
LENS RETENTION	■ Safety Spectacles available with removable and non removable lenses must meet High Mass Impact and High Velocity Impact tests. (See test requirements section)	■ Same as 1989 standard
TEST REQUIREMENTS	■ High Mass Impact Test 17.6 oz pointed projectile dropped from a height of 51.2 in. should not cause any parts or fragments of the protector to be ejected that could contact the eye of the headform. ■ High Velocity Impact Test 1/4 in. steel ball traveling at 150 feet/sec (102mph). No contact with the eye of the headform is allowed as a result of the impact, nor shall any parts or fragments of the protector be ejected that could contact the eye of the headform. ■ Test Lens Thickness Test lenses for frames designed for Non-Plano spectacles shall be 3.0mm thick. Plano lenses shall be 3mm thick except plastic which can be 2mm thick.	■ Spectacle Frame Test Designed to test the ability of the frame to retain a lens upon impact and to evaluate the strength of the temples and/or sideshields. ■ High Mass Impact Test 17.6 oz pointed projectile dropped from a height of 50 in. No piece shall be detached from the inner surface of any spectacle component, the lens shall be retained in the frame. ■ High Velocity Impact Test 1/4 in. steel ball traveling at 150 feet/sec. No contact with the eye of the headform is allowed. No piece shall be detached from the inner surface of any spectacle component and the lens shall be retained in the frame. ■ Test Lens Thickness Test lenses for frames designed for Non-Plano spectacles shall be 2.0mm +0.2mm-0.0mm (0.079 in +0.008 in -0.00 in). A test lens shall be capable of withstanding the High Mass Impact Test and High Velocity Impact Test criteria.

FRAME REQUIREMENTS	OLD ANSI Z87.1-1989	NEW ANSI Z87.1-2001
SIDESHIELDS	■ The use of protectors providing side protection should be encouraged wherever practical.	■ Same as 1989 Standard
FRAME MARKING	■ All major spectacle components shall bear A manufacturer's trademark and shall be marked Z87 to indicate compliance with the standard. In addition, fronts shall be marked with the A dimension (eye size) and DBL (distance between lenses). Temples shall be marked with their overall length.	■ Spectacle frames for removable, non-plano lenses shall be marked with the manufacturer's identifying mark or symbol and Z87-2. ■ In addition, fronts shall be marked with the A dimension (eye size) and DBL (distance between lenses). Temples shall be marked with their overall length.
WARNING LABEL	■ None required	■ Warning shall be provided to alert the user when the lens(es) of a protector meet only the basic impact requirements of this standard. A clearly visible, removable label or hang tag shall be affixed to any protector which does not meet the High Impact requirements of the standard. The label or tag shall contain an appropriate warning indicating that the lens meets Basic Impact requirements but should not be relied upon for protection from high impact exposure. The label or tag shall also state that it is to be removed only by the user