fibers, the less strength in the leather. Leather used for welding and heat gloves has gone through an additional wash to remove more of the animal fat; then chemicals are added which enhance its heat resistant properties. In the process of building up leather heat resistant properties, there is a sacrifice in its wear properties. No tanner has yet discovered how to treat leather to give it equally superior heat and wear resistance.

The weight of leather used for hand protection depends on what type of safeguard you are using. Naturally, a hand pad or mitten can be made out of a heavier grade than a finger guard or glove. Most welding, heat, and steel reinforced gloves and mittens are made of medium weight leather.

A special tanned heat resistant leather is desirable for use on asbestos gloves and mittens requiring leather reinforcement. Dexterity does not permit the use of heavy leathers.

Leather should be cut so the grain runs lengthwise. The stretch of leather is in the opposite direction to the grain and therefore should run across the palm of the hand so it will stretch when the hand is clenched.

Leather performs best where the materials being handled are dry. The presence of oils, acids, and water causes leather to become slippery and deteriorate rapidly.

Steel staples can be used to provide additional reinforcements on leather gloves, hand pads, and finger guards, which are designed to meet a wide variety of cutting and abrasive hazards. Finger guards offer good protection with a minimum sacrifice of dexterity. There are especially useful on small punch press work, sorting, burring, polishing, assembly, inspection, *etc.*

We would like to point out that leather safeguards can be designed to give additional protection to whatever wear point is presenting a problem to you and can be custom-designed to solve specialized problems. This is the reason for the great number of different style hand pads, gloves, mittens, and finger guards being used by industry today. It is up to your company and your safety apparel supplier, to decide what will satisfactorily do the job for you.

The commercial value of asbestos depends largely on two physical characteristics — its incombustibility and its unique fiber structure. Asbestos cloth is converted into gloves, mittens, hand guards, and finger guards.

A common question asked by the asbestos safeguard user is, "How hot an object can be handled?" This question cannot be accurately answered without knowing what the exposure time and temperature factors are.

Thermo-analysis investigations conducted in the research laboratory of the Asbestos Textile Institute reveal that, up to approximately 1,490°F., the asbestos structure is stable. Above this temperature, it is permanently altered and inverted to another non-fibrous crystalline structure — olivine. However, at 750° F. there is notable deterioration in fiber quality through the permanent depletion of some of the structural water of crystallization, and at 1300° F. the structure is nearly completely void of the hydrous elements.

This table shows effect of heat on the tensile strength of asbestos.

	Tensile Strength psi	*Percent of Original Tensile Strength*
Original crude — no heat	131,000	——
Heated 3 Minutes at 600°F	120,000	91.6%
Heated 3 Minutes at 800°F	96,000	73.3%
Heated 3 Minutes at 1,000°F	78,000	59.5%
Heated 3 Minutes at 1,200°F	42,000	32.0%

It should be remembered that the temperature of the material being handled is not the same as the oven temperature. Instruments are available which can measure this important difference.

Experience and research has established that the optimum asbestos content by weight is between 80 per cent and 85 per cent. That which meets this specification is referred to as *underwriters grade.*

Heat resistance and wearing properties of asbestos cloth are determined by the following factors:

1. Asbestos content
2. Type of filler