

TopFlite Rubber Co.



★ **PROVEN SUPERIORITY**
... through
SCIENTIFIC RESEARCH AND DEVELOPMENT!

★ **PROVEN MANUFACTURING**
TECHNIQUES BY A STAFF OF EXPERTS!



★ **PROVEN DURABILITY**
... through
**CONSISTENT LABORATORY TESTING
AND EVALUATION!**

★ **PROVEN PERFORMANCE**
... through
**YEARS OF ACTUAL SERVICE
AND CUSTOMER SATISFACTION!**












HISTORY

LABORATORY



TopFlite Mixing Plant :

Located on "Beautiful" Lake Guntersville, Alabama 

-  **TopFlite** Rubber Company began in 1933 as "O.K. Rubber Welders", Head-Quartered in Littleton, Colorado. O.K. was one of the early pioneers in tire retreading systems.
-  **1960** - O.K. Rubber Welders purchased a small tread rubber plant located in Guntersville, Alabama from Gates Tire & Rubber Company.
-  **1963** - O.K. Rubber Welders name was changed to O.K. Tire & Rubber Company, Inc.
-  **1966** - Ashland Oil, Inc. purchased O.K. Tire & Rubber Co., Inc.
-  **1968** - Major expansions were completed with the addition of a Banbury mixing plant, and a new extrusion line.
-  **1969** - O.K. Tire & Rubber Co., Inc. relocated their headquarters to Ashland, Ky. and incorporated it with the T.B.A. division of Ashland Oil, Inc.
-  **1980** - Ashland Oil Inc. liquidated the tire division and changed the name of the Guntersville operation to TopFlite Rubber Co. a division of Ashland Oil, Inc.
-  **1984** - Further expansions were completed with the addition of a modern mill mixing plant.
-  **1989** - Ashland Oil, Inc. sold TopFlite to Price Rubber Corp. of Montgomery, Alabama. PRC is one of the nation's largest conveyor belt manufacturers and TopFlite's largest custom mix rubber customer.



THE RHEOMETER

In operating a Rheometer, a double-coned disk is put in a rubber sample, which is contained in an electrically-heated constant pressure die cavity. The disk is oscillated at various frequencies and the torque required to oscillate the disk, applying a shear strain to the specimen, is recorded as a function of cure time.

The Rheometer is a versatile curemeter, which is used in research, compound development, in-process quality control and customer technical service.

No other single instrument can evaluate processing and curing properties as reliably, precisely and as rapidly as the Rheometer.

A Rheometer Determines:

- ① Initial viscosity
- ② Minimum viscosity
- ③ Thermoplasticity
- ④ Induction or scorch point (indicated by 1" lb. rise from minimum)
- ⑤ Induction time or scorch safety
- ⑥ Maximum cure
- ⑦ Optimum cure
- ⑧ Optimum cure time
- ⑨ Cure rate
- ⑩ Reversion
- ⑪ Reversion time

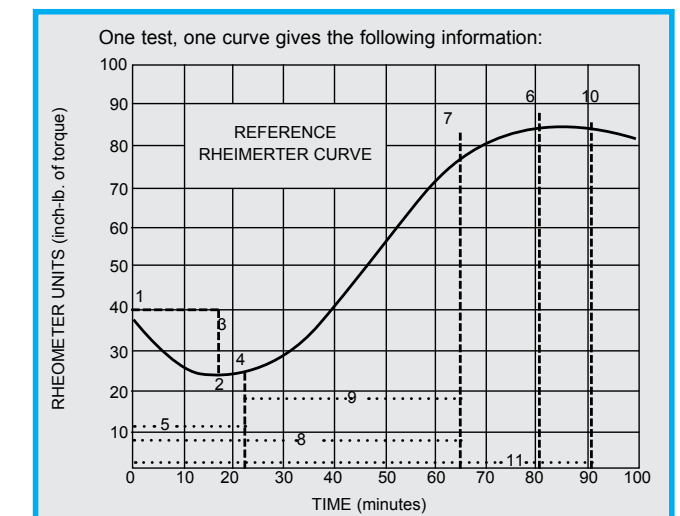


THE MOONEY VISCOMETER

The basic data determined by the Mooney Viscometer is called viscosity and scorch.

The viscosity test indicates the processing characteristics of a given rubber compound. Since the introduction of various types of cold-feed extruders, viscosity has become the major factor in controlling extruding characteristics.

Scorch is premature vulcanization of a rubber compound. The rubber becomes partially-vulcanized before the product is in final form and ready to be fully-vulcanized.



THE SCOTT TESTER

The Scott Tester is an instrument used to determine the stress-strain properties, such as tensile, modulus and elongation of a vulcanized rubber sample. A standard procedure has been developed for these tests. The stock is cured in a mold and a dumbbell test piece is cut out with a die. Bench marks, one-inch apart, are then placed on a narrow portion, and the test piece is placed in the machine and stretched until it breaks. The tensile strength is expressed as pounds per square-inch of the original cross-section area.

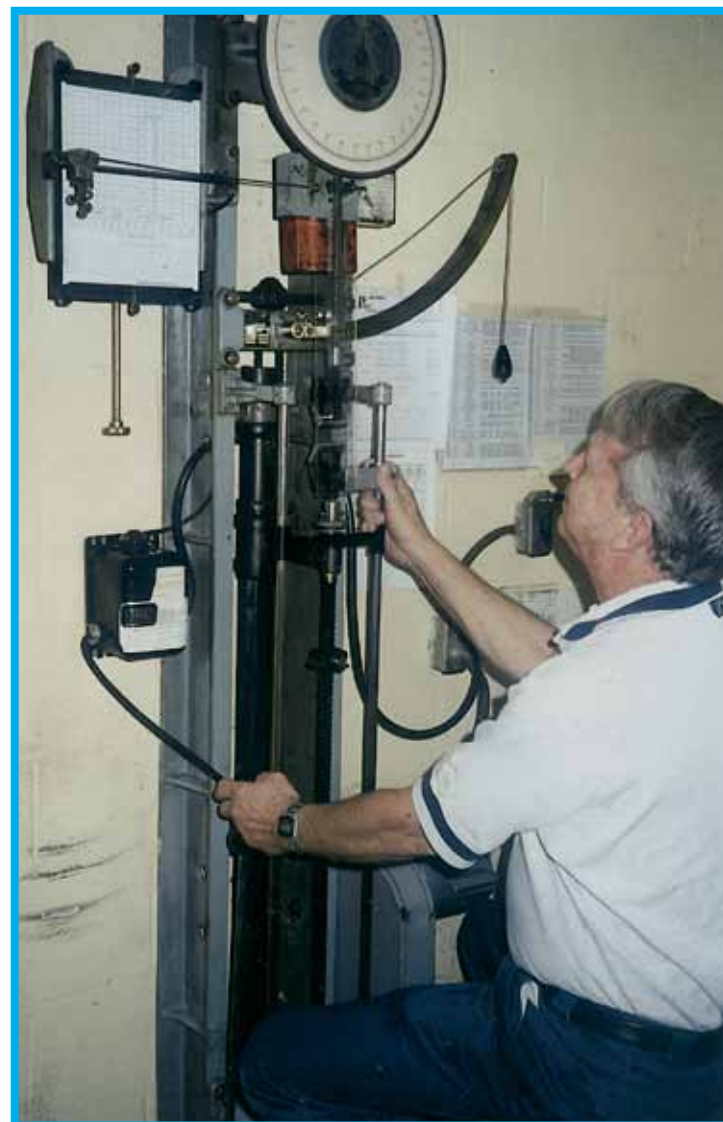
Elongation is expressed as the percentage of the original length to which the test piece is stretched.

If the original bench marks are one-inch apart and are then stretched to three inches, the elongation is 200 percent. A stress-strain curve is plotted showing the relationship between these properties. The load required to stretch the specimen to any given elongation is referred to as the modulus at the elongation.

TENSILE STRENGTH

This value is the ultimate strength of rubber stock when enough stress has been applied to cause a break. Tensile strength can be influenced by the type and amount of fillers in the compounds. Also poor dispersion of the ingredients will cause low readings in tensile.

For years, this value has been correlated with high abrasion resistance since high tensile usually meant high quality stock and one that was well mixed. Some new developments, such as the addition of polybutadiene, have recently reduced the value of tensile figures as criteria for predicting abrasion resistance.



MODULUS

Modulus is a measure of force required to stretch a material a particular amount. In rubber, generally a sample is stretched 300° and the necessary force (pounds per square inch) is calculated.

ELONGATION

The term elongation is used to describe the ability of rubber to stretch without breaking.



SPECIFIC GRAVITY

Specific gravity is the ratio between the unit volume weight of a vulcanizate and the weight of the same volume of distilled water at a given temperature.

Testing specific gravity is an important control test for checking accuracy in compounding and serves as a guide in comparing relative compound costs.

A convenient method for determining the specific gravity of vulcanized rubber consists of finding the solution of known density in which a sample neither sinks to the bottom nor rises to the surface.

Since all ingredients used in rubber compounding have specific gravities, a calculated gravity can be made for each compound.

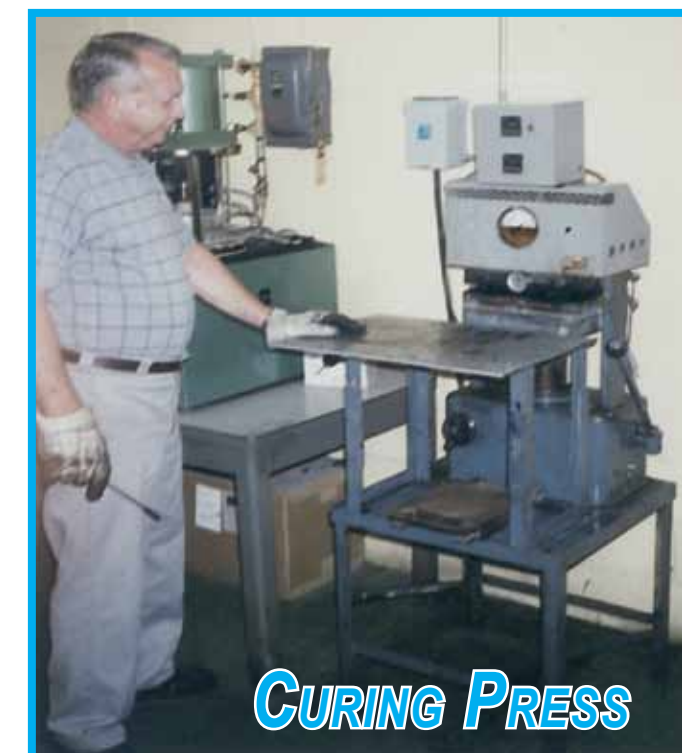
Fillers, carbon black, clays and mineral extenders have gravities higher than rubber.

This property of rubber, when used with tensile and other physical tests can tell the experienced compounder if a compound has an extraordinary amount of inexpensive nonconforming fillers which tend to lower the quality of compounds.



THE HARDNESS TESTER

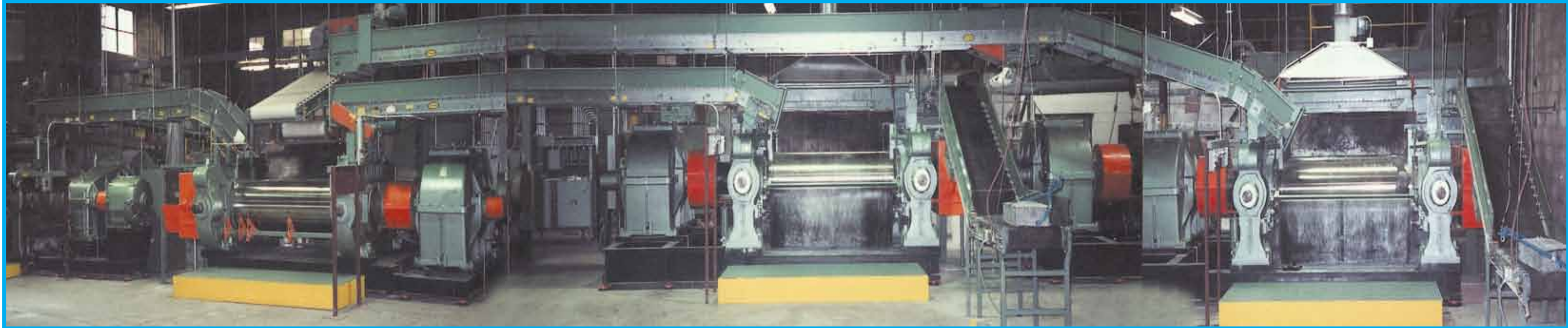
The Shore Durometer measures the hardness of rubber stock. A metallic point, actuated by a spring, is pressed against the surface of the stock, and the hardness value of the stock is read directly on the scale of the instrument. It is an important property, frequently used in rubber specifications along with tensile properties.



CURING PRESS

PRODUCTION

FACILITIES



DESIGNED FORMULATIONS OR YOURS . . .

TopFlite has two different mix plants at the Guntersville, Alabama location with an annual capacity of over **60,000,000 lbs.**

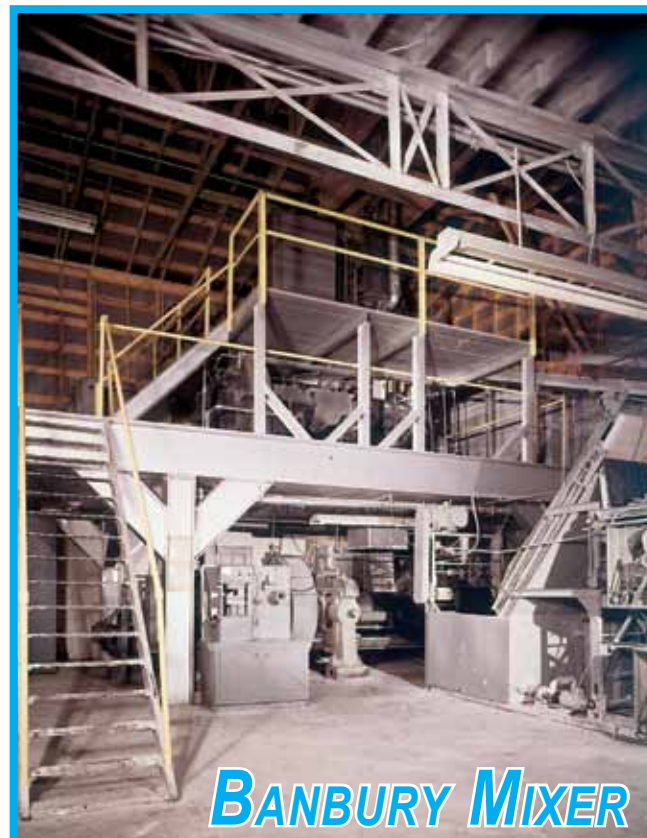
Banbury (Internal Mixer) Plant

Various rubber compounds are mixed in the banbury, dropped onto a batch-off mill, stripped into slab-stock form, coated, cooled and wig-waged onto a skid in continuous form.

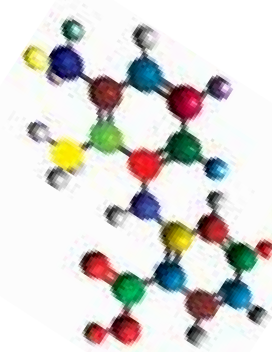
Banbury mixed slab stock is used by manufacturers of conveyor belting, mechanical goods and various industrial applications.

Mill / Extrusion Plant

84" corrugated roll mills are used to mix various rubber compounds. The rubber is then transferred by conveyor to other 84" and 60" mills for further blending. The rubber is then transferred in strip form to the extruder where it is extruded into ribbon strip and other various shapes and sizes. It is then water cooled, dried, coated and packaged. The mill plant produces tread rubber for tire retreading, as well as conveyor belting mechanical goods and various other industrial applications.



BANBURY MIXER



NR
NATURAL
RUBBER

SBR
STYRENE-BUTADIENE
RUBBER

BR
POLYBUTADIENE
RUBBER

NBR
NITRILE
ELASTOMERS

CR
NEOPRENE
BLENDS

Deep well water is used in the cooling operation of both plants. **Cold, 62° F.** water year round assures a much higher quality rubber compound.



SLAB BATCH-OFF

EXTRUSIONS

RIBBON STRIP



★ SPECIAL EXTRUDED SLAB ★



EXTRUDED DIE-SIZE

Each of **TopFlite** formulations are offered in die-size (camelback) form for quantity shipments. Custom-mix formulations are extruded into various forms for industrial products orders. The die-size rolls are packaged in individual cardboard containers or roll-stacked on skids.

TopFlite offers numerous **SBR**, **PBD**, and **Natural** blend formulations used in tire retreading, conveyor belting, mechanical goods and various other industrial applications. **TopFlite** custom mixes to the customer's specifications or will work with the customer in designing formulations for a specific application.



★ RIBBON STRIP ★



★ DIE-SIZE ★

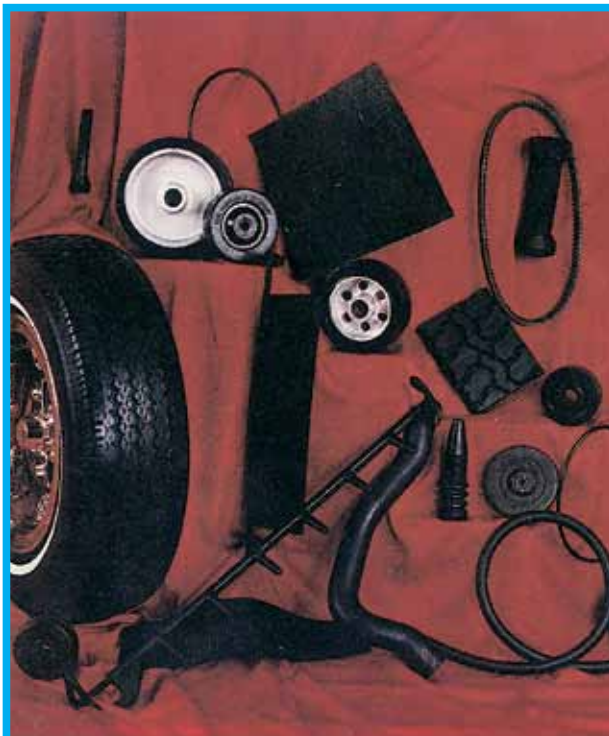
Both ribbon strip and die-size are produced in the mill mix / extrusion plant. Ribbon strip is specifically designed for cold-feed extruders. Die-size is produced in various formulations, shapes and sizes for tire retreading and industrial products. Both ribbon strip and die-size rolls are packaged in individual cardboard containers or stacked on skids.

SLAB STOCK

QUALITY ASSURANCE

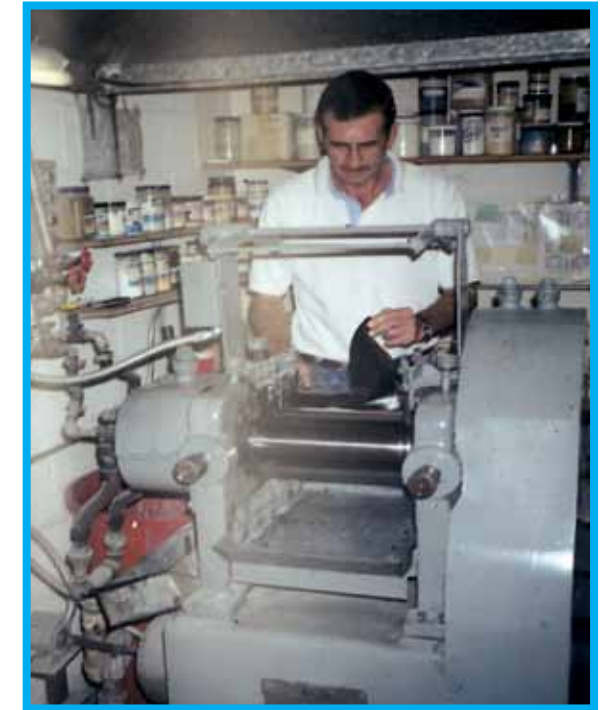
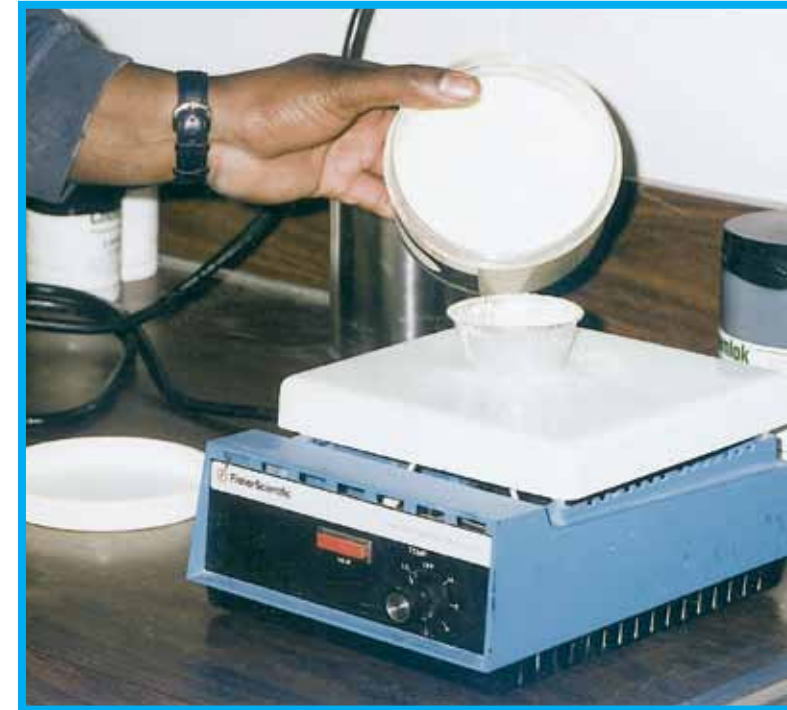


Slab stock is a fully compounded, Banbury mixed material, wig-waged onto skids in slab form. It is tested and ready for final blending and processing by the customer. Slab stock is designed for manufacturing conveyor belting and various other industrial products.



Belts!
Extrusions!
Gaskets!
Hose!
Molded Goods!
Tires / Re-Cap!

★ **Some of the many products manufactured by customers of TopFlite!**



★ WEIGHING A LABORATORY TEST BATCH ABOVE LEFT & MIXING ON A LABORATORY MILL ABOVE RIGHT ★

Rheometers and other standard laboratory equipment are used to routinely test each **TopFlite** production run to ensure consistent high quality also tests competitive products and will evaluate customer's finished product upon request.

Research and development is an on-going process, ensuring that **TopFlite** maintains its position as a leader in the industry. **TopFlite** takes pride in its reputation for producing a top quality product. We are one of a very few rubber manufacturers that furnish its customers the composition of its standard formulations.

A quality control certification report that lists the results of the tests-the rheograph, mooney viscosity, scorch, specific gravity and stress-strain properties, (tensile modulus, elongation, etc.) is automatically furnished to customers with each shipment.

Your Assurance of "Top-of-the-Line" in Quality Rubber!

★ **TopFlite** ★



CUSTOM MIXING



Laboratory Consistency...

Batch After Batch!

TopFlite™

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www.pricerubber.com

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Made in U.S.A!



Guntersville, AL.