

CEB:ELS  
VII-3

DEPARTMENT OF COMMERCE  
BUREAU OF STANDARDS  
Washington, D.C.

Letter  
Circular  
LC 24

(February 9, 1933)

TESTS OF PNEUMATIC TIRES & INNER TUBES.

In the Spring of 1932, the various tire companies were requested by the Federal Purchase Board to submit samples of their tires and inner tubes, to be in accordance with Bureau of Standards Circular 115, to the end that they might be placed on the government list, as being eligible to bid for government business.

The Bureau has compiled the results of the tests made on these tires and inner tubes in two tables inclosed herewith. The tests were made in the manner described in Circular No. 38, of the Bureau of Standards, and the results include the complete physical tests and chemical analysis.

It is thought that this information may be of value to the industry.

BUREAU OF STANDARDS.



| Lab No. | Size  | Color | Pole Diameter | Thickness | Length  | Tensile Strength<br>lb per sq. in | Ult. Elong % | Set %      | Act Ext Corri | Total Sulphur | R as compound | R by vol.  | Ratio Act Ext R | Ratio S/R  |
|---------|-------|-------|---------------|-----------|---------|-----------------------------------|--------------|------------|---------------|---------------|---------------|------------|-----------------|------------|
|         |       |       |               |           |         | Class A                           |              |            |               |               |               |            |                 |            |
| 2393    | 30x3½ | Grey  | 2.10          | .090      | 81½     | 3215                              | 810          | 0          | 41            | 41            | 894           | 940        | 46              | 46         |
| 2658    | 30x3½ | Brown | 2.10          | .065      | Section | 3060                              | 740          | 8.0        | 41            | 64            | 796           | 909        | 5.2             | 8.0        |
| 2296    | 33x4  | Grey  | 2.38          | .077      | 88½     | 2015                              | 760          | 4.0        | 30            | 25            | 861           | 953        | 3.5             | 2.9        |
| 2444    | 30x3½ | Grey  | 2.18          | .073      | 81½     | 2865                              | 865          | 0          | 28            | 54            | 914           | 935        | 31              | 5.9        |
| 2452    | 30x3½ | Grey  | 2.24          | .068      | 79½     | 2430                              | 775          | 0          | 25            | 32            | 863           | 946        | 2.9             | 3.7        |
| 2377    | 30x3½ | Brown | 2.20          | .090      | 80      | 2360                              | 730          | 2.0        | 2.6           | 3.9           | 897           | 929        | 8.8             | 3.2        |
| 2448    | 30x3½ | Grey  | 2.09          | .072      | 79½     | 2080                              | 720          | 2.0        | 25            | 30            | 863           | 936        | 2.9             | 3.5        |
| 2461    | 30x3½ | Grey  | 2.15          | .078      | 81½     | 2545                              | 765          | 2.0        | 53            | 45            | 715           | 890        | 7.4             | 6.3        |
| 2365    | 30x3½ | Green | 2.20          | .078      | 81½     | 2895                              | 780          | 0          | 33            | 20            | 897           | 917        | 3.7             | 2.3        |
| 2798    | 30x3½ | Grey  | 2.12          | .077      | 81½     | 1960                              | 830          | 7.0        | 28            | 30            | 775           | 899        | 3.6             | 3.9        |
| 2593    | 30x3½ | Grey  | 2.40          | .088      | Section | 2420                              | 840          | 2.0        | 28            | 44            | 823           | 918        | 3.4             | 5.3        |
| 2594    | 30x3½ | Grey  | 2.25          | .073      | 82½     | 2180                              | 860          | 2.0        | 23            | 41            | 812           | 909        | 2.8             | 5.1        |
| 2479    | 30x3½ | Grey  | 2.10          | .089      | 82½     | 1840                              | 965          | 2.0        | 34            | 53            | 922           | 918        | 3.7             | 5.7        |
| 2317    | 30x3½ | Grey  | 2.21          | .064      | 82½     | 2450                              | 900          | 0          | 32            | 44            | 932           | 944        | 3.4             | 4.7        |
| 2504    | 30x3½ | Grey  | 2.14          | .082      | 80½     | 2580                              | 815          | 0          | 39            | 53            | 898           | 918        | 4.7             | 6.3        |
| 2323    | 30x3½ | Grey  | 2.12          | .074      | 82½     | 1935                              | 805          | 2.0        | 2.7           | 3.3           | 929           | 941        | 2.9             | 3.6        |
| 2409    | 30x3½ | Grey  | 2.10          | .080      | 81½     | 2740                              | 810          | 0          |               |               |               |            |                 |            |
| 2410    | 30x3½ | Grey  | 2.22          | .084      | 81½     | 1900                              | 870          | 0          | 30            | 49            | 945           | 954        | 3.2             | 5.2        |
| 2807    | 33x4  | Grey  | 2.65          | .092      | 90½     | 2895                              | 765          | 4.0        | 16            | 28            | 871           | 936        | 1.8             | 3.2        |
| 2380    | 30x3½ | Grey  | 2.48          | .088      | 80½     | 2345                              | 790          | 1.0        | 2.6           | 35            | 889           | 931        | 2.9             | 3.8        |
| 2403    | 30x3½ | Grey  | 2.09          | .086      | 83½     | 2655                              | 770          | 0          | 23            | 46            | 834           | 882        | 2.8             | 5.5        |
| 2696    | 30x3½ | Grey  | 2.26          | .086      | 82½     | 3000                              | 805          | 1.0        | 30            | 37            | 908           | 947        | 3.3             | 4.1        |
| 2641    | 30x3½ | Grey  | 2.20          | .070      | 82      | 2600                              | 755          | 5.0        | 23            | 33            | 855           | 891        | 2.7             | 3.9        |
| 2435    | 30x3½ | Black | 2.28          | .088      | 84½     | 2655                              | 825          | 0          | 31            | 27            | 875           | 914        | 3.5             | 3.1        |
| 2398    | 30x3½ | Grey  | 2.03          | .070      | 81½     | 2430                              | 765          | 1.0        | 21            | 26            | 847           | 919        | 2.5             | 3.1        |
| 2400    | 35x5  | Red   | 3.60          | .115      | 95½     | 2180                              | 770          | 0          | 21            | 24            | 846           | 927        | 2.5             | 2.5        |
| 2818    | 30x3½ | Red   | 2.68          | .086      | 80½     | 2735                              | 790          | 0          | 33            | 26            | 903           | 953        | 3.7             | 2.8        |
| 2368    | 30x3½ | Grey  | 2.11          | .076      | 82      | 2570                              | 850          | 2.0        | 1.9           | 2.6           | 711           | 908        | 2.7             | 3.7        |
| 2890    |       |       |               |           | Section | 2935                              | 600          | 1.0        | 21            | 38            | 899           | 932        | 2.3             | 4.2        |
| 2359    | 30x3½ | Grey  | 2.25          | .091      | 84½     | 3140                              | 780          | 0          | 38            | 38            | 889           | 934        | 3.7             | 4.3        |
| 2289    | 30x3½ | Grey  | 2.12          | .088      | 82½     | 2670                              | 830          | 0          | 31            | 42            | 888           | 944        | 3.5             | 4.7        |
| 2457    | 30x3½ | Grey  | 2.20          | .094      | 80½     | 2775                              | 805          | 0          | 35            | 48            | 906           | 940        | 3.9             | 5.3        |
| 2465    | 30x3½ | Grey  | 2.06          | .078      | 80½     | 2550                              | 775          | 0          | 31            | 32            | 870           | 944        | 3.6             | 3.7        |
| 2510    | 30x3½ | Grey  | 2.30          | .074      | 81½     | 2430                              | 785          | 0          | 33            | 41            | 872           | 921        | 3.8             | 4.7        |
| 2625    | 30x3½ | Grey  | 2.14          | .086      | 82      | 2575                              | 860          | 1.0        | 30            | 58            | 935           | 959        | 3.2             | 6.2        |
| 2306    | 30x3½ | Grey  | 2.06          | .086      | 80½     | 2665                              | 755          | 7.0        | 32            | 35            | 801           | 920        | 4.0             | 4.4        |
| 2386    | 30x3½ | Grey  | 2.02          | .073      | 81½     | 1855                              | 390          | 0          | 28            | 39            | 852           | 966        | 2.8             | 4.1        |
| 2484    | 28x3  | Grey  | 1.96          | .091      | 76½     | 1900                              | 950          | 4.0        | 30            | 65            | 801           | 925        | 3.3             | 7.2        |
|         |       |       |               |           |         | Class B                           |              |            |               |               |               |            |                 |            |
| 2470    | 30x3½ | Red   |               |           | 82½     | 2280                              | 830          | 4.0        | 1.8           | 3.9           | 788           | 905        | 2.3             | 5.0        |
| 2378    | 30x3½ | Red   | 2.08          | .073      | 81½     | 2420                              | 875          | 1.0        | 1.8           | 35            | 851           | 914        | 2.1             | 4.1        |
| 2395    | 30x3½ | Red   | 2.07          | .093      | 81½     | 2920                              | 765          | 0          | 28            | 41            | 791           | 892        | 3.6             | 5.2        |
| 2588    | 30x3½ | Red   | 2.11          | .078      | 80½     | 2220                              | 950          | 5.0        | 27            | 39            | 878           | 920        | 3.1             | 4.4        |
| 2363    | 30x3½ | Red   | 2.20          | .075      | 80½     | 2540                              | 775          | 6.0        | 22            | 50            | 742           | 876        | 3.0             | 6.7        |
| 2660    | 30x3½ | Red   | 2.10          | .072      | Section | 3120                              | 750          | 8.0        | 47            | 36            | 798           | 901        | 5.9             | 4.1        |
| 2442    | 30x3½ | Red   | 2.18          | .091      | 82½     | 2810                              | 785          | 0          | 27            | 43            | 873           | 938        | 3.1             | 4.8        |
| 2285    | 33x4  | Red   | 2.49          | .083      | 89      | 2620                              | 885          | 3.0        | 18            | 34            | 854           | 919        | 2.2             | 4.0        |
| 2475    | 30x3½ | Red   | 2.06          | .073      | 87½     | 2390                              | 880          | 7.0        | 26            | 34            | 823           | 933        | 3.2             | 4.1        |
| 2605    | 30x3½ | Red   | 2.32          | .096      | 80½     | 2680                              | 775          | 0          | 34            | 23            | 885           | 994        | 3.8             | 2.6        |
| 2326    | 30x3½ | Red   | 2.10          | .058      | 81½     | 2345                              | 800          | 2.0        | 25            | 35            | 858           | 922        | 2.9             | 4.1        |
| 2808    | 33x4  | Red   | 2.65          | .108      | 90½     | 2640                              | 735          | 5.0        | 2.8           | 2.9           | 851           | 933        | 3.3             | 3.4        |
| 2300    | 30x3½ | Red   | 2.19          | .085      | 82½     | 3550                              | 790          | 0          | 1.9           | 28            | 753           | 888        | 2.5             | 3.9        |
| 2382    | 30x3½ | Red   | 2.04          | .083      | 79      | 2345                              | 780          | 2.0        | 2.6           | 48            | 859           | 904        | 2.9             | 5.6        |
| 2153    | 35x5  | Red   | 3.88          | .165-620  | 91½     | 1315<br>1815                      | 860<br>810   | 7.0<br>3.5 | 37<br>23      | 57<br>23      | 831<br>810    | 917<br>901 | 3.7<br>4.8      | 6.1<br>9.1 |
| 2497    | 36x6  | Red   | 4.45          | .150      | Section | 2280                              | 890          | 8.0        | 28            | 47            | 800           | 913        | 3.5             | 5.9        |
| 2367    | 30x3½ | Red   | 2.10          | .076      | 82      | 2380                              | 880          | 7.0        | 26            | 34            | 823           | 933        | 3.2             | 4.1        |
| 2828    | 30x3½ | Red   | 2.19          | .089      | 79½     | 3265                              | 810          | 1.0        | 27            | 29            | 897           | 947        | 3.0             | 3.2        |
| 2388    | 30x3½ | Red   | 2.00          | .078      | 81½     | 1870                              | 850          | 5.0        | 30            | 40            | 842           | 923        | 3.6             | 4.8        |
| 2485    | 30x3½ | Red   | 2.20          | .087      | 81½     | 3835                              | 780          | 6.0        | 2.7           | 28            | 788           | 911        | 3.4             | 3.6        |

Pure Gum

Antimony





| General Information |  |  |  |  |  |  |  |  |  | Dimensions of Section |  |  |  |  |  |  |  |  |  | Strength of Materials |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  | Lab No |  |
|---------------------|--|--|--|--|--|--|--|--|--|-----------------------|--|--|--|--|--|--|--|--|--|-----------------------|--|--|--|--|--|--|--|--|--|-------------------|--|--|--|--|--|--|--|--|--|---------|--|--|--|--|--|--|--|--|--|--------|--|
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  | Thickness of Section  |  |  |  |  |  |  |  |  |  | Tensile Strength      |  |  |  |  |  |  |  |  |  | Chemical Analysis |  |  |  |  |  |  |  |  |  | Remarks |  |  |  |  |  |  |  |  |  |        |  |
| No. of Piece        |  |  |  |  |  |  |  |  |  |                       |  |  |  |  |  |  |  |  |  |                       |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |        |  |







