INVESTIGATION OF MAGNETIC GAGES FOR MEASURING THICKNESS OF COATINGS ON STEEL

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TEXAS HIGHWAY DEPARTMENT

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FOR

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By

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ABSTRACT

A determination of the overall accuracy of the magnetic gages was made with respect to testing of galvanized and paint coatings on steel. Conclusions and "indicators" were obtained relative to the use of the magnetic gages and methods of testing thickness of coatings.

SUMMARY

This investigation, while quite involved and lengthy, did reflect present procedures which were in error as well as the accuracy of the magnetic gages. The difficulties and errors encountered in calibration of the gages, under the various circumstances, indicate the present calibration procedures outlined in Texas Highway Department Test Method Tex-728-I, will have to be revised. The overall results of the magnetic gages indicates that they have a reasonably good accuracy, under certain circumstances, but caution should be exercised in their use. The magnetic gages should be used to obtain an "indication" of the coating thicknesses but should not be considered to be accurate to such an extent as to be 100% effective. The accuracy of the magnetic gages varies with the type of coating, thickness of base metal, thickness of coating, and base metal anchor patterns. Comparison tests of methods for determination of actual weight of coating (galvanized products) reflect that a difference exists between results obtained by the ASTM A-90 strip test versus coupon weigh-checking and that it is of a sufficient degree to affect magnetic gage comparisons. An analysis of the microscopic measurements of paint films shows that paint films should not be "averaged" to obtain a base point for magnetic gage comparisons since the coating will vary greatly from point to point due to the rough anchor pattern of blasted steel. The test procedure will be revised and improved to compensate for variables encountered when measuring coatings on steel with magnetic gages.

IMPLEMENTATION

The data obtained in this project shows that it will be necessary to revise Test Method Tex-728-I with respect to calibration of magnetic gages for each type of coating as well as indicating which gage is most appropriate for the type of coating to be measured. The use of magnetic gages for checking coatings on steel would seem to be an acceptable method when used as "indicators" of actual coating thickness. The inspector should not assume these gages to be 100% accurate or to be capable of acting as "referee" instruments in cases of dispute.

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I. SUBJECT

Determination of the acceptability of magnetic film thickness gages for use in inspection of coatings on steel.

II. PURPOSE

The primary purpose of this investigation was to determine the accuracy of three types of magnetic gages for measuring the thickness of galvanized and paint coatings on steel members of various thicknesses, base metals and configurations.

The secondary purposes were to (1) determine the effect of various operators performing the same tests with the same gages and (2) to obtain an indication of the variance between methods of ASTM A-123 for determining actual weight of galvanized coatings, i.e. coupon weigh-checking vs. the strip test of ASTM A-90 and its effect on magnetic gage results.

III. CONCLUSIONS

Test data compiled during this investigation reflects that the accuracy of the three magnetic gages tested is not the same for measuring galvanized coatings as for paint coatings on steel. Three reasons for this are outlined below.

1. The bases used for comparison (i.e. the strip test for galvanizing and the microscopic examination for paint films) are in themselves inaccurate as was pointed out in Section VII "Comparative Discussion".
2. The measuring of different coatings with differently prepared base metal surfaces (pickled or etched for galvanizing and shot or sand blasted for paint) which present different anchor patterns.
3. The methods of gage calibration are different due to specification requirements. Galvanized coatings are measured as a <u>total coating</u> (including peaks and valleys) whereas paint films are measured as a <u>minimum thickness</u> (coating over the highest peaks).

These items, as well as others, affect the accuracy determinations shown in this report. Taking this into account, it is believed that the magnetic gages are more accurate than indicated in this report. Each gage has its own pattern and so must be considered on its own merit.

A. Elcometer. This instrument had an accuracy of 66.4% on galvanized coatings while achieving an accuracy of 58% on paint films. On galvanized coatings, this gage tended to indicate thicknesses less than the actual but on paint films was the most accurate, reading on both the plus and minus side. The Elcometer displayed a very well balanced group of readings on paint films and would be considered the most accurate for that use.

B. Mikrotest. Due to calibration problems with this gage, it is difficult to make a proper analysis. However, this gage tended to be a rather well-balanced instrument for measuring both galvanized and paint coatings on steel. When used in accordance with the manufacturer's instructions (no calibration or correction) the Mikrotest had a 75.7% accuracy on galvanized coatings while attaining a 50% accuracy on paint films - when calibrated by Test Method Tex-728-I.

C. Tinsley. Since there is no provision for calibrating this gage, it showed a varied result on the different coatings. On galvanized coatings, the Tinsley's accuracy was 73.9% and 12% on paint films. This gage tended to read excessively high on paint films and generally low (but with occasional high and low readings) on galvanized coatings. This gage may well be used on galvanized coatings, bearing in mind its general tendency to read low but occasionally flucuate. By taking numerous readings and averaging them, this gage can be considered an acceptable indicator of galvanized coating thickness. This gage is not recommended for measuring paint film thicknesses.

In analyzing the performance of the gages on galvanized coatings, one must consider that a certain amount of the percent error indicated is due to the removal of oxidized base metal in the ASTM A-90 strip test. This is evidenced by the Correlation Test performed to give an indication of metal loss and its effect on the magnetic gage results. It can be assumed that the accuracy of the magnetic gages may well be from 5 to 10% greater than indicated.

The individual test results indicated that a careless operator could affect the results but mainly only in the calibration of the instruments. In taking readings, it is felt that any two operators would achieve basically the same results if they read with the same gage at exactly the same location. The inspector should pay particular attention to calibration of the instrument so as not to obtain erroneous readings.

IV. MATERIALS:

The materials used in this investigation were as outlined below.

For Tests on Galvanized Coatings:

A. Ninety (90) 4" x 4" samples of ASTM A-36 and A-441 steel plate of various thicknesses.

B. Forty-eight (48) 4" long samples of various structural I-beam and wide flange shapes of ASTM A-36 and A-441 steel.

C. Twenty-four (24) 4" long sections of ASTM A-53 pipe in 1-1/4" to 3-1/2" diameters.

D. Twelve (12) 1/4" x 4" x 4" samples of ASTM A-36 steel plate (production galvanized) for comparison tests on methods of determining actual weight of coating as specified in ASTM A-123. No magnetic gage readings were made on these samples.

For Tests on Paint Films:

A. Fifteen (15) 4" x 4" samples of various thicknesses of ASTM A-36 steel plate coated with shop coat paint. Six (6) samples were coated with Shop Coat #700 paint (a linseed oil type primer) and nine (9) samples were coated with Shop Coat #800 (an alkyd-oil-chlorinated rubber type primer).

Samples for tests on galvanized coatings were prepared by cleaning for galvanizing and selecting one out of each group of six samples of each plate thickness, structural shape size and pipe diameter as a "control sample" and hot-dip galvanizing the remaining five of each group. The "control samples" were used for calibration of the magnetic gages. Samples for tests on paint films were blast cleaned and portion of each sample masked off prior to painting so that an unpainted surface was available for calibration of the gages.

V. EQUIPMENT

The equipment used in this investigation consisted of four (4) magnetic gages of three types and two optical devices. The magnetic gages used represent the types used by inspection personnel in the fabricating shop or in the field to measure thickness of galvanized coatings and paint films on steel. The magnetic gages used were:

A. Elcometer, 0 to 5 mil range (galvanized coatings).

B. Elcometer, 0 to 10 mil range (paint coatings).

C. Mikrotest, 0 to 40 mil range (all coatings).

D. Tinsley, 0 to 15 mil range (all coatings).

The optical instruments used to determine paint film thicknesses were:

A. Tooke gage

B. Microscope, using reflected light microscopy.

The Elcometer, Mikrotest and Tooke gages are described in a report entitled "Measuring Thickness of Coatings" by Joseph G. Raska, Senior Paint Engineer (LI 7-66 B) issued by the Materials and Tests Division, Texas Highway Department and will not be further described here. The Tinsley gage is a pencil type gage housing an alnico magnet attached to a calibrated spring and which operates on a spring tension versus magnetic attraction principle. The reflected light microscope was used to ascertain the actual paint film thickness, measuring in microns and converting to mils.

VI. PROCEDURE:

This procedure is divided into three parts (A) Galvanized Samples - Magnetic Gages; (B) Galvanized Samples - Correlation Test and (C) Paint Samples.

A. Galvanized Samples - Magnetic Gages.

1. Sample Preparation. All samples were identified with a steel stencil according to base metal type. The samples were then separated according to base metal, thickness and configuration. The samples were cleaned, pickled, rinsed and prepared for hot-dip galvanizing in accordance with ASTM A-123. At this point, the "Control Samples" - one sample from each base metal, thickness and configuration - were removed from the lot, dried and placed in plastic bags to retard corrosion. The remainder of the samples (five of each group) were hot-dip galvanized in groups according to thickness and configuration in accordance with ASTM A-123 and then water quenched.

2. Sample Identification. The samples were delivered to the Materials and Tests Laboratory where they were numbered with a pre-selected code and test spots (1/2" diameter circles) were marked on each sample with a felt tipped pen. The plates and pipe sections were each marked with five (5) test spots and the structural shapes were each marked with ten (10) test spots, five on the flanges and five on the web of each sample. The test spots were marked on both sides of the samples in areas carefully selected to avoid dross, roughness, heavy accumulations and edge effects. Each test spot was code lettered to provide for rechecking, if necessary.

See Figure A (Appendix A) for marking and numbering of samples.

3. Testing. To determine the effect of operator inexperience on the test results, operators were selected from engineering, inspection, technical and clerical personnel. Each operator was instructed in the proper use of the gage he was to use - according to the manufacturer's instructions as modified by Test Method Tex 728-I (Appendix A). The operators calibrated the gages at the beginning and at each change in base metal thickness (after about 25 readings). Calibrations were made on the Control Samples using standard brass shims. The Elcometer and the Mikrotest gages were calibrated but the Tinsley gage was not (factory calibrated). Readings were taken at each test spot and recorded on the worksheet provided. Each operator worked independently and was not allowed to compare results with other operators.

4. Results. When all magnetic gage readings had been taken and recorded, they were tabulated to determine the samples which had the highest and lowest readings in each group. All plates, the high and low samples of shapes and pipe sections were subjected to the strip test of ASTM A-90 and the results recorded in Table I (Appendix B). The magnetic gage readings obtained by each operator are shown in Table II (Appendix B). During the preparation of Table III "Operator-Gage Percent Error" (i.e. Magnetic gage readings versus the strip test) it was noted that the Mikrotest had excessively high percent errors. A recheck of the data revealed that without the use of correction factors as required by Test Method Tex 728-I, the Mikrotest readings were much closer to actual coating thicknesses.

Table III illustrates this by showing two sets of data for the Mikrotest. Table IIa reflects the actual Mikrotest readings without application of the correction factors.

5. Discussion

The variances noted between operators seemed to follow no definite pattern as the the experience or inexperience of the operators. In general, variances were small or negligible but occasionally a high or low set of readings would be obtained by an individual operator. It would be expected that, if the gage manufacturer's instructions were followed, any two operators would be able to obtain reasonably close results at any point - using the same gage.

The results shown in Table III indicate that the magnetic gages would generally read less than the actual coating thickness on plates and shapes. The probable cause of this is that the heavy accumulations (drip line) and areas of excessive roughness are not measured because they are within 1/2" of the edges of the plate or shape. Therefore the strip test will indicate more coating than was measured by the gages and the gages would indicate less coating. The gages tend to read higher than the actual coating on small diameter pipe. This is believed to be caused by the radius of curvature of the pipe which tends to make the gage "ride high" and thus indicate a greater coating thickness. There were, of course, exceptions to this, indicating that other factors were involved.

The samples marked with an asterisk (*) in Table III obviously are in error - probably due to the strip test - since all gages were in gross error on those samples.

Those results are not included in the final analysis of gage accuracy. As indicated at the bottom of Table III, the ability of the three magnetic gages to obtain results within the ± 15% accuracy expected in ASTM E376 is as follows.

Elcometer	66.4%
Mikrotest (Corrected)	15.2%
Mikrotest (Uncorrected)	75.7%
Tinsley	73.9%

It is obvious that, for galvanized coatings, the Mikrotest should not have correction factors applied but should be read direct (as the manufacturer instructs). The factory calibrated Tinsley gage reflects a good overall accuracy but its occasional high or low readings affect its accuracy. The Elcometer suffers much the same built-in error as did the Mikrotest, with correction factors applied, but not to the same extent.

B. Galvanized Samples - Comparison Test

This test is to obtain an indication of the variances between weigh-checking coupons in the galvanizing plant and the laboratory strip test of ASTM A-90 for determining the weight of galvanize coating. Both of these tests are permitted by ASTM A-123.

1. Sample Preparation & Testing. Twelve (12) 1/4" x 4" x 4" steel plate coupons were cleaned, pickled, rinsed and dried and weighed to establish "pickled weight". These coupons were then attached to structural steel members just prior to galvanizing and galvanized with the structural members. After galvanizing, the samples were re-weighed and the galvanized weight recorded. From this date the average weight of galvanized coating was calculated. This data was recorded in Table IVa under "SHOP" heading. The coupons were sent to the laboratory where they were again weighed, subjected to the strip test of ASTM A-90 and weighed in the stripped condition. The average weight of coating was again computed and recorded in Table IVa under the "LABORATORY" heading.

The differences between these coating weights were computed and an average percent difference obtained.

2. Discussion.

The overall average difference between SHOP and LABORATORY was found to be + 4.6% with the LABORATORY weight of coating in excess of that found in the SHOP. This figure was obtained by regression analysis. The regression analysis plot is shown in Appendix B with Table IVa.

To ascertain how this might affect the results obtained in this investigation (Tables II & III), the percent error for samples 10 & 20 were recalculated by reducing the original strip test results by 4.6% and recomputing the percent error for these samples. The original gage accuracy versus the corrected gage accuracy for the ten (10) specimens is shown in Table IVb and outlined below.

GAGE	PERCENT ACCURACY ORIGINAL	PERCENT ACCURACY CORRECTED	DIFFERENCE
Elcometer	68.6%	77.1%	+ 8.5%
Mikrotest (Uncorrected)	73.3%	83.3%	+10.0%
Tinsley	80.0%	86.7%	+ 6.7%

Since the coupons used in making this test were 1/4" thick, the comparison can only be made for like thicknesses (i.e. Samples 10 & 20) but it does show a definite change in gage accuracy and indicates that the magnetic gages may well be more accurate than as indicated in Table III. This, of course, is based on the premise that the weigh-checking of coupons in the galvanizing plant is the true and accurate method and that the ASTM A-90 method tends to remove oxidized base metal during the stripping operation and therefore reflects a higher weight of coating. Similar tests would be required to establish data for samples of other thicknesses. Further investigation will not be made on this correlation in this report.

C. Paint Samples.

1. Sample Preparation. The fifteen (15) samples of various plate thicknesses were blast-cleaned to a near-white finish on one side of each sample and a 3/4" wide strip was masked off along one edge prior to painting. Six samples (two each of three thicknesses) were coated with Shop Coat #700 paint and nine samples (three each of three thicknesses) were coated with Shop Coat #800 paint. The paint was applied so that there would be a range of paint film thicknesses over the group of samples. For example, one sample may be coated with approximately 2 mils; another with 5 mils, the other with 8 mils and so on.

2. Sample Identification. The samples were identified by a pre-selected number code and general areas for test readings indicated. See Figure B, Appendix A for marking and numbering of samples.

3. Testing. The Elcometer and Microtest gages were calibrated by using standard shims on the bare steel strip on each sample. The Tinsley gage was not calibrated. Five readings per sample were made by each magnetic gage and the results recorded on worksheets. The operators were instructed and supervised as for the tests on galvanized sample testing.

4. Results. It became evident almost immediately that the calibration of the Elcometer and Mikrotest gages was a problem. The problems for each gage are outlined below.

   a. Elcometer - The calibration of the Elcometer showed that plastic shims could not be used because the pressure exerted

on the gage, by the operator, indented the shim and caused erroneous readings. Brass shims were substituted and that problem was resolved.

b. Mikrotest - The calibration of the Mikrotest - using correction factors required by Test Method Tex-728-I - immediately showed negative coating thicknesses on thinner paint films. This condition indicated that both the plastic and brass shims were too rigid to allow proper calibration of the gage due to the anchor pattern. To alleviate this problem, the standard commercial shims were disposed of and non-commercial shims of a flexible nature were substituted. These non-commercial shims were constructed of flexible plastic such as that found in plastic bags, etc. and were measured by a micrometer to establish the actual thickness.

The readings obtained with the Elcometer, Mikrotest (calibrated with both commercial and Flexible Shims) and the Tinsley gage are shown in Table V. After all magnetic gage readings were taken and recorded, the samples were subjected to microscopic examination to establish the actual paint film thickness. The film thickness was considered to be from the highest peak of the base metal anchor pattern to the top of the paint film. Readings were taken at each of the five designated test areas on each sample and recorded on worksheets. Samples 6-1, 6-2, 9-1, 9-2 and 9-3 were not measured microscopically due to limitations of the equipment. When microscopic measurements were complete, the samples were subjected to film thickness readings taken by the Tooke gage - for comparison. The results obtained by microscopic examination and the

Tooke gages are shown in Table V. Table VI, which shows the percent error of each gage, was computed using the microscopic measurements as the basis for calculating the percent error for each of the magnetic gages and the Tooke gage.

5. Discussion.

The percent error for the magnetic gages shown in Table VI indicate a number of interesting conclusions. A look at this table shows a fluctuation at individual points by the gages. For example, a gage may have less than 15% error on test points A, B, C and D and suddenly record a 25% error on test point E. This condition seemed to be rather prevalent throughout the table. The conclusions, in this case would be that (1) the paint film is not uniform at this test point or (2) the base metal peak used as reference in determining the film thickness was not the same height as the peak measured with the magnetic gage. The final conclusion is that the magnetic gage measurement should not be compared for accuracy except at exactly the same point as the measurement was made. In other words, the magnetic gage measures that point and only that point. A comparison of individual percent errors shows the following accuracies.

Individual Results

Elcometer ----- 58% of readings within $\pm$ 15% permitted by ASTM E 376

Mikrotest ----- 50% of readings within $\pm$ 15% permitted by ASTM E 376

Tinsley ------- 12% of readings within $\pm$ 15% permitted by ASTM E 376

Tooke --------- 42% of readings within $\pm$ 15% permitted for this test

This comparison points out the fact that, on an individual basis, the Elcometer has a slightly higher accuracy rate than does the Mikrotest.

The Elcometer's higher accuracy rate is probably due to the fact that the Elcometer has a dual-contact which would tend to check an "area" moreso than a "point" and would thereby tend to "average" the peaks of the anchor pattern. The Tinsley gage, due to its method of operation (i.e. a pull-off method), always reads high because it tends to "ride-up" on the highest peaks of the paint film and would generally read the thickest portions of the film. A comparison of the averages per test point shows much the same results as for the individual points.

Averages per Test Point

Elcometer ----- 68% within $\pm$ 15% permitted by ASTM E 376

Mikrotest ----- 54% within $\pm$ 15% permitted by ASTM E 376

Tinsley ------- 8% within $\pm$ 15% permitted by ASTM E 376

This comparison shows that the average of all operators per test point tends to be much the same as the accuracy found for individual operators. It should be noted that this is true only for this investigation and may or may not always be the case. When magnetic measurements are made, they are considered on a per test point per operator basis. Considering the average per sample per operator would the be normal procedure for determining the average film thickness in standard practice. A comparison for that determination is shown below.

Average Accuracy per Sample

	Opr. 1	Opr. 2	Opr. 3	Opr. 4	Gage Avg.
Elcometer --------	50%	90%	70%	70%	70%
Mikrotest --------	80%	40%	70%	-	63%
Tinsley ----------	10%	10%	0	-	7%

This comparison shows quite a variation in accuracy between operators. This may be caused by the previously stated fact that averages of paint films are not accurate and that the magnetic gages can only be considered accurate at the exact point at which the reading was taken. Another consideration may well be in the accuracy of the calibration of each gage by each operator.

VII. COMPARATIVE DISCUSSION

This investigation shows that a number of variables are present which affect the determination of magnetic gage accuracies. The variables are discussed below in relation to the type of coating measured by the magnetic gages.

A. Galvanized Coatings

1. Samples were not measured in heavy accumulation areas such as "drip lines" since edge effects (within 1/2" of edges) would affect the gages. Therefore, there was actually more zinc on the sample than could be measured by the magnetic gages and would consequently cause the strip test of ASTM A-90 to show a greater weight of coating than was actually present in the measured areas. Thus, the magnetic gages appeared to read less than the weight of coating established by the strip test.
2. The Comparison Test (Table IV-B)
   Shows that the strip test of ASTM A-90 removes oxidized base metal as well as the zinc coating thereby reflecting a weight of coating approximately 4.6% greater than is actually present.
3. The magnetic gages are subject to error by virtue of their "point contact" during measurement. This can cause high or low readings depending on their position on the sample. Moving the gages slightly in any direction causes a change in the readings.

4. The base metal anchor pattern affects the magnetic gage readings. A deep anchor pattern (overpickling) will cause erratic readings whereas a relatively smooth anchor pattern (normal pickling) will cause the gages to have less variance over a surface.

B. Paint Coatings

1. The "point contact" of the gages causes errors as for galvanizing.
2. The base metal anchor pattern for paint coatings is attained by sand or shot blasting the steel which presents a very deep irregular pattern. Therefore, the source of error is increased in determining the accuracy of the magnetic gages.
3. The high variance of paint film determination across the samples shows that the paint film is not uniform and the microscopic analysis of each test point area could be inaccurate, mainly due to the rough and irregular anchor pattern.

C. Analysis

The variables listed above show that:

(1) the bases used for establishing the gage accuracies are in themselves inaccurate; (2) the gages may well be more accurate than indicated by the results shown; (3) the method of gage calibration must be different for each type of coating; (4) calibration of gages must be carefully done in order to prevent erratic readings and (5) the strip test of ASTM A-90 may be used for checking galvanized coatings but is not sufficiently accurate for comparison of magnetic gages. A comparison of gage accuracies for galvanized and paint coatings is shown below.

	% Accuracy	
Gage	Galvanizing	Paint
Elcometer	66.4%	58%
Mikrotest (Uncorrected)	75.7%	-
Mikrotest (flex shim)	-	50%
Tinsley	73.9%	12%
Tooke	-	42%

This comparison indicates that the Elcometer is a fairly universal gage, useable on both types of coatings with nearly the same degree of accuracy. The Mikrotest obtains good results but must be calibrated differently for each type of coating. The Tinsley gage displays a good accuracy on galvanizing but has rather poor accuracy on paint films. Obviously, Test Method Tex-728-I must be rewritten to prevent improper use of these gages. To accomplish this, a proposed revision to Test Method Tex-728-I is included in Appendix A of this report.

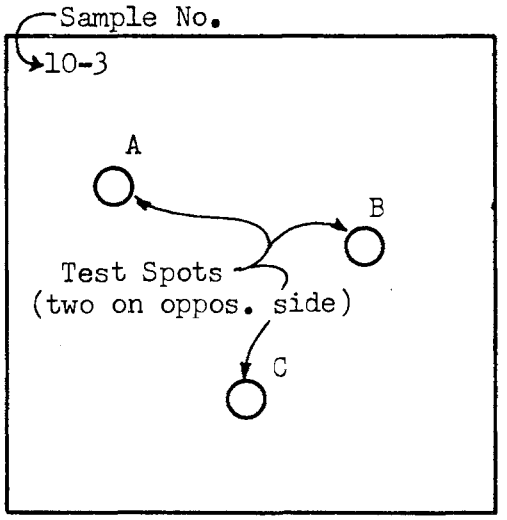
The results obtained in this investigation while indicative, do not clearly establish the true accuracy of the magnetic gages due to the many variables involved. However, with the knowledge of how each gage performs under certain circumstances these gages may be used by inspection personnel to provide an indication of the thickness of non-magnetic coatings on steel.

APPENDIX A

GALVANIZED STEEL

SAMPLE IDENTIFICATION

GROUP NO.	NUMBER OF SAMPLES GALVANIZED	SIZE & CONFIGURATION	BASE METAL TYPE
1	5	1/16" plate	A-36
2	5	1/8" plate	A-36
10	5	1/4" plate	A-441
11	5	3/8" plate	"
12	5	1/2" plate	"
13	5	5/8" plate	"
14	5	3/4" plate	"
15	5	1" plate	"
20	5	1/4" plate	A-36
21	5	3/8" plate	"
22	5	7/16" plate	"
23	5	5/8" plate	"
24	5	3/4" plate	"
25	5	7/8" plate	"
26	5	1" plate	"
36	5	6 WF 8.5, 3/16" Fl. & Web	A-36
37	5	6 WF 25, 7/16" Fl., 5/16" Web	"
38	5	8 WF 17, 5/16" Fl., 1/4" Web	"
44	5	4 I 7.7, 5/16" Fl., 3/16" Web	A-441
45	5	6 WF 15.5, 1/4" Fl. & Web	"
46	5	8 WF 20, 3/8" Fl., 1/4" Web	"
47	5	10 WF 25, 7/16" Fl., 1/4" Web	"
48	5	12 WF 27, 3/8" Fl., 1/4" Web	"
53	5	1-1/4" Std. Pipe	A-53
54	5	2-1/2" Std. Pipe	"
55	5	3" Std. Pipe	"
56	5	3-1/2" Std. Pipe	"



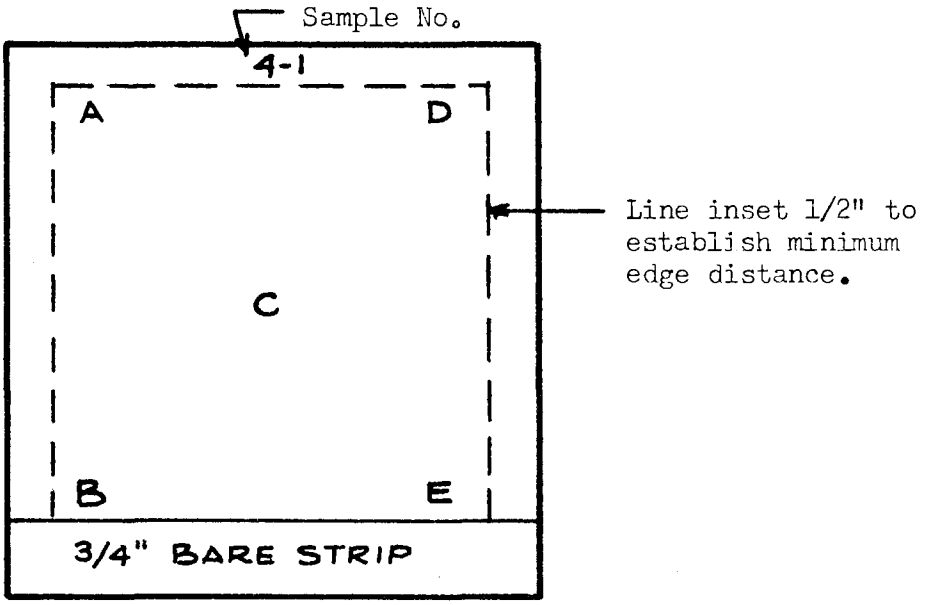
TYPICAL TEST SPOT LAYOUT

FIGURE A

PAINT ON STEEL

SAMPLE IDENTIFICATION

Sample Group No.	Base Metal Thickness	Type Coating
4	1/4"	Shopcoat # 700
5	1/2"	Shopcoat # 700
6	1"	Shopcoat # 700
7	1/4"	Shopcoat # 800
8	1/2"	Shopcoat # 800
9	1"	Shopcoat # 800



TYPICAL TEST AREA LAYOUT

FIGURE B

Texas Highway Department

Materials and Tests Division

DRY FILM THICKNESS MEASUREMENTS OF COATINGS ON STRUCTURAL STEEL

Scope

This test method describes procedure and instrumentation used to measure dry film thicknesses of protective coatings as required in Item 446 of Texas Highway Department Standard Specifications.

Apparatus

1. A film thickness measuring instrument of the type that can be adjusted to indicate exactly the known thickness of a shim when the thickness of the shim is measured over uncoated material similar to that bearing the coating to be measured. The instrument's accuracy shall be within ± 0.1 mil over a range of ± 1 mil of the specified thickness.

2. Standard thickness shims made of suitable non-magnetic material. One shim to be approximately the specified thickness. One shim to be approximately ± 1 mil of specified thickness. Shim thickness to be uniform over its entire area, to be known, and to be accurate within ± 0.01 mil.

3. Examples:

Elcometer
G. E. Type B Thickness Gage

Procedure

1. Instrument Calibration. Place standard shim matching specified thickness over an uncoated base similar to that bearing the coating to be measured. Following instrument manufacturer's instructions, adjust instrument to indicate the known thickness of the shim. With the instrument adjusted, using the same base location, measure the thickness of another standard shim having a thickness of approximately ± 1 mil of the shim used for adjusting. The instrument must indicate the known thickness within ± 0.1 mil.

2. Film Thickness Measurement Procedure

a. Standard Procedure. Place standard shim with thickness approximately the same as that required by the specification over an uncoated area meeting surface cleaning specifications (if an uncoated area is not available, clean a spot using paint remover; or make a standard base by cleaning, to specification requirements, a piece of steel of the same type and thickness as the coated steel). Adjust the thickness gage to indicate the exact thickness of the shim while measuring the thickness of the shim according to the equipment manufacturer's instructions. When instrument is adjusted measure film thickness at selected locations. Mark or record test location and film thickness.

No greater than 15 tests should be made without rechecking the adjustment of the instrument.

b. Alternate Procedure. All tests to settle disputes shall be determined by the above procedure, but for routine and other uncontested checking, the following alternate procedure may be used:

If another instrument, such as the "Mikrotest", is used, a calibrated shim shall be placed on the bare prepared surface reference area. The thickness of the shim shall be determined with the instrument and a correction factor shall be applied to all measurements.

To determine correction factor, proceed as shown in the following example:

Place 2 mil shim on surface and determine thickness; Mikrotest indicates 3.25 mils. Subtract 2 mils from 3.25 mils to give a correction factor of 1.25 mils to be subtracted from measurements on coating thickness. For example, a Mikrotest reading of 4.25 mils for a coating would be 4.25 minus 1.25 or 3.0 mils of actual coating.

Texas Highway Department

Materials and Tests Division

MEASUREMENTS OF COATINGS ON STEEL BY MAGNETIC-FIELD OR EDDY-CURRENT METHODS

Scope

This test method describes the procedure and instrumentation used to measure dry film thicknesses of protective coatings on steel. Part A describes procedure and instrumentation for paint films and Part B describes procedure and instrumentation for galvanized coatings.

Precautions

When using magnetic-field or eddy-current instruments, follow the manufacturers instructions and observe the following precautions.

DO NOT take readings closer than 1/2" from edges, holes and inside corners.

DO NOT use instrument on items of small radius of curvature unless the instrument has been calibrated for such use.

DO NOT use instruments in heavy vibration areas.

DO NOT use instruments in heavy electrical areas such as near arc-welding machines, or near any magnetic fields.

DO NOT use instruments in any position for which they are not recommended.

DO NOT take readings in areas which are coated with dirt, grease, corrosion, flux, acid spots, dross and oxides.

PART A
(Paint Films)

Apparatus

1. A film thickness measuring instrument of the type that can be adjusted to indicate exactly the known thickness of a shim when the thickness of the shim is measured over uncoated material similar to that bearing the coating to be measured. The instrument's accuracy shall be within ± 0.1 mil over a range of ± 1 mil of the specified thickness.

   Examples:

   Elcometer
   G.E. Type B Thickness Gage
   Minitector

Alternate instruments in which the deviation from actual thickness is known or may be compensated for by a correction factor may be used for routine and other uncontested testing as indications of coating thickness, when approved by the Materials and Tests Division.

Example:

Mikrotest

2. Standard thickness shims made of suitable non-magnetic material. One shim to be approximately the specified thickness and the second shim to be approximately $\pm$ 1 mil of the specified thickness. Shim thickness shall be uniform over its entire area, shall be known, and shall be accurate within $\pm$ 0.01 mil.

Instrument Calibration

1. Standard instruments which can be adjusted to read the exact thickness shall be calibrated as follows.

   Place a standard shim of the specified thickness on an uncoated base similar to that bearing the coating to be measured. Following the instrument manufacturers instructions, adjust the instrument to indicate the known thickness of the shim. With the instrument adjusted, using the same base location, measure the thickness of a second shim having a thickness of approximately $\pm$ 1 mil of the shim used for adjusting. The instrument must indicate the known thickness within $\pm$ 0.1 mil.

Measurement

1. Standard Procedure

   Place standard shim with thickness approximately the same as that required by the specification over an uncoated area meeting surface cleaning specifications (if an uncoated area is not available, clean a spot using paint remover; or make a standard base by cleaning, to specification requirements, a piece of steel of the same type and thickness as the coated steel). Adjust the thickness gage to indicate the exact thickness of the shim while measuring the thickness of **the shim according** to the equipment manufacturer's instructions. When instrument is adjusted measure film thickness at selected locations. Mark or record test location and film thickness.

   No greater than 15 tests should be made without rechecking the adjustment of the instrument.

2. Alternate Procedure

   All tests to settle disputes shall be determined by the above procedure, but for routine and other uncontested checking, the following alternate procedure may be used:

   If another instrument, such as the "Mikrotest", is used, a calibrated shim shall be placed on the bare prepared surface reference area. The thickness of the shim shall be determined with the instrument and a correction factor shall be applied to all measurements.

To determine correction factor, proceed as shown in the following example:

Place 2 mil shim on surface and determine thickness; Mikrotest indicates 3.25 mils. Subtract 2 mils from 3.25 mils to give a correction factor of 1.25 mils to be subtracted from measurements on coating thickness. For example, a Mikrotest reading of 4.25 mils for a coating would be 4.25 minus 1.25 or 3.0 mils of actual coating.

PART B
(Galvanized Coatings)

Apparatus

1. Standard Film thickness measuring instruments of the type shown in Part A of this test method may also be used for measuring thickness of galvanized coatings.

   Example:

   Elcometer
   G.E. Type B Thickness Gage
   Minitector

2. Alternate instruments may be used for measuring thickness of galvanized coatings when approved by the Materials and Tests Division and when used for routine, uncontested testing.

   Examples:

   Mikrotest
   Tinsley Gage

Instrument Calibration

1. The standard instruments shown under Apparatus shall be calibrated as indicated in Part A of this test method.

2. The alternate instruments shown under Apparatus shall be used without shop or field calibration or correction and shall be read directly.

Measurement

Follow the instrument manufacturer's instructions, taking readings directly from the instruments' dial or scale. Record the readings - in mils - on a worksheet. Make at least 10 readings per galvanized article.

Calculation

Divide each reading (or the average of numerous readings per galvanized article) by 1.7 to obtain the weight of coating in ounces per square foot (OZ/SF). Some conversions are shown below to assist the inspector.

Mils	=	Oz/Sf
3.1	=	1.8
3.4	=	2.0
3.9	=	2.3

APPENDIX B

TABLE I

Galvanized Metal Strip Test Worksheet

GALVANIZED METAL
STRIP TEST WORKSHEET

TABLE I

PROJECT: 3-08-69-014 SPECIFICATION: ASTM A-123

TEST SAMPLE NUMBER	SURFACE AREA (S.F.)	WEIGHT PICKLED (gr.)	WEIGHT GALVANIZED (gr.)	WEIGHT DIFF. (gr.)	WEIGHT DIFF. (oz.)	WEIGHT ZINC CTG. (oz/SF)
1-1	0.2300	119.5	138.2	18.7	0.660	2.87
2	0.2281	121.0	132.7	11.7	0.413	1.80
3	0.2249	117.1	133.6	16.5	0.582	2.59
4	0.2250	116.4	134.0	17.6	0.621	2.76
5	0.2265	114.5	126.9	12.4	0.436	1.34
2-1	0.2361	255.0	273.5	18.5	0.652	2.76
2	0.2361	253.2	270.4	17.2	0.607	2.57
3	0.2328	250.7	268.3	17.6	0.621	2.67
4	0.2378	251.3	268.1	16.8	0.593	2.49
5	0.2361	250.1	266.7	16.6	0.586	2.48
10-1	0.2553	515.7	535.2	19.5	0.688	2.69
2	0.2578	512.1	536.0	23.9	0.843	3.27
3	0.2536	511.4	533.0	21.6	0.762	3.00
4	0.2500	505.3	526.2	20.9	0.737	2.94
5	0.2525	508.1	528.0	19.9	0.702	2.78
11-1	0.2642	777.2	809.6	32.4	1.141	4.29
2	0.2700	784.1	823.0	38.9	1.372	5.08
3	0.2731	791.0	829.9	38.9	1.372	5.00
4	0.2465	783.1	818.6	35.5	1.252	4.61
5	0.2713	779.6	820.0	40.4	1.425	5.25
12-1	0.2867	1057.6	1077.8	20.2	0.751	2.60
2	0.2856	1024.1	1039.9	15.8	0.556	1.95
3	0.2865	1045.2	1061.4	16.2	0.571	1.99
4	0.2815	1026.2	1041.4	15.2	0.536	1.90

GALVANIZED METAL
STRIP TEST WORKSHEET

TABLE I

PROJECT: 3-08-69-014 SPECIFICATION: ASTM A-123

TEST SAMPLE NUMBER	SURFACE AREA (S.F.)	WEIGHT PICKLED (gr.)	WEIGHT GALVANIZED (gr.)	WEIGHT DIFF. (gr.)	WEIGHT DIFF. (oz.)	WEIGHT ZINC CTG. (oz/SF)
12-5	0.2826	1036.0	1064.0	28.0	0.988	3.47
13-1	0.2956	1281.0	1302.0	21.0	0.741	2.50
2	0.3035	1425.0	1442.0	21.0	0.741	2.42
3	0.2924	1261.0	1281.0	20.0	0.705	2.41
4	0.2981	1299.0	1321.0	22.0	0.776	2.58
5	0.2988	1294.0	1314.0	20.0	0.705	2.36
14-1	0.3115	1549.0	1570.0	21.0	0.741	2.35
2	0.3119	1561.0	1582.0	20.0	0.705	2.24
3	0.3142	1543.0	1566.0	23.0	0.811	2.58
4	0.3196	1584.0	1604.0	20.0	0.705	2.21
5	0.3203	1592.0	1613.0	21.0	0.741	2.31
15-1	0.3375	2124.0	2150.0	26.0	0.917	2.68
2	0.3390	2048.0	2081.0	33.0	1.164	3.43
3	0.3471	2159.0	2190.0	31.0	1.093	3.11
4	0.3464	2098.0	2125.0	27.0	0.952	2.75
5	0.3478	2108.0	2132.0	24.0	0.846	2.43
20-1	0.2500	491.7	508.7	17.0	0.600	2.39
2	0.2518	491.4	508.0	16.6	0.585	2.32
3	0.2537	494.7	512.0	17.3	0.610	2.40
4	0.2521	491.9	508.8	16.9	0.596	2.36
5	0.2553	497.6	515.0	17.4	0.614	2.40
21-1	0.2669	777.3	824.8	47.5	1.674	6.23
2	0.2670	766.8	809.0	42.2	1.488	5.57
3	0.2668	764.5	806.0	41.5	1.464	5.48

GALVANIZED METAL
STRIP TEST WORKSHEET

TABLE I

PROJECT: 3-08-69-014 SPECIFICATION: ASTM A-123

TEST SAMPLE NUMBER	SURFACE AREA (S.F.)	WEIGHT PICKLED (gr.)	WEIGHT GALVANIZED (gr.)	WEIGHT DIFF. (gr.)	WEIGHT DIFF. (oz.)	WEIGHT ZINC CTG. (oz/SF)
21-4	0.2681	770.2	806.2	36.0	1.268	4.70
5	0.3326	768.1	816.0	47.9	1.689	5.07
22-1	0.2937	1048.9	1066.0	17.1	0.603	2.05
2	0.2924	1040.9	1058.0	17.1	0.603	2.06
3	0.2891	1037.9	1055.0	17.1	0.603	2.09
4	0.2879	1033.8	1052.9	19.1	0.674	2.32
5	0.2860	1031.0	1047.8	16.8	0.592	2.06
23-1	0.3025	1338.0	1365.0	27.0	0.952	3.15
2	0.2990	1354.0	1380.0	26.0	0.917	3.07
3	0.3054	1367.0	1398.0	31.0	1.093	3.54
4	0.3056	1397.0	1423.0	26.0	0.917	2.97
5	0.3058	1346.0	1374.0	28.0	0.988	3.23
24-1	0.3156	1617.0	1642.0	25.0	0.882	2.76
2	0.3172	1596.0	1624.0	28.0	0.988	3.11
3	0.3078	1576.0	1604.0	28.0	0.988	3.17
4	0.3126	1581.0	1610.0	29.0	1.023	3.27
5	0.3185	1604.0	1627.0	23.0	0.811	2.55
25-1	0.3296	1902.0	1928.0	26.0	0.917	2.71
2	0.3374	1919.0	1950.0	31.0	1.093	3.24
3	0.3264	1880.0	1910.0	30.0	1.058	3.20
4	0.3357	1904.0	1930.0	26.0	0.917	2.73
5	0.3834	1856.0	1884.0	28.0	0.988	2.58
26-1	0.3444	2119.0	2151.0	32.0	1.129	3.27
2	0.3451	2110.0	2141.0	31.0	1.093	3.16

GALVANIZED METAL
STRIP TEST WORKSHEET

TABLE I

PROJECT: 3-08-69-014 SPECIFICATION: ASTM A-123

TEST SAMPLE NUMBER	SURFACE AREA (S.F.)	WEIGHT PICKLED (gr.)	WEIGHT GALVANIZED (gr.)	WEIGHT DIFF. (gr.)	WEIGHT DIFF. (oz.)	WEIGHT ZINC CTG. (oz/SF)
26-3	0.3358	2079.0	2110.0	31.0	1.093	3.20
4	0.2678	2140.0	2171.0	31.0	1.093	4.01
5	0.3415	2108.0	2140.0	32.0	1.129	3.30
36-1F	0.0985	138.6	144.4	5.8	0.203	2.05
3W	0.1725	261.8	280.0	18.2	0.642	3.72
5F	0.0971	154.2	160.7	6.5	0.229	2.36
5W	0.1754	268.6	280.7	12.1	0.427	2.43
37-2F	0.1403	421.5	429.6	8.1	0.286	2.04
2W	0.1790	504.8	515.9	11.1	0.392	2.19
4F	0.1902	571.4	583.2	11.8	0.416	2.19
4W	0.1816	509.0	520.4	11.4	0.402	2.21
38-1F	0.1280	300.0	308.7	8.7	0.307	2.40
1W	0.1796	354.4	365.2	10.8	0.381	2.01
2F	0.1382	304.4	312.6	8.2	0.289	2.09
2W	0.1792	351.2	361.6	10.4	0.367	2.05
44-1F	0.0379	87.1	96.9	9.8	0.346	9.11
3F	0.0505	114.5	125.8	11.3	0.399	7.89
3W	0.1210	201.9	223.6	21.7	0.765	6.32
5W	0.1139	190.2	216.6	26.4	0.931	8.18
45-1F	0.1353	270.1	290.0	19.9	0.700	5.17
1W	0.1778	398.6	427.0	28.4	1.002	5.63
45-4F		SAMPLE DESTROYED				
5W	0.1778	395.4	426.7	31.3	1.104	6.20
46-1F	0.1155	324.6	342.6	18.0	0.635	5.50

GALVANIZED METAL
STRIP TEST WORKSHEET

TABLE I

PROJECT: 3-08-69-014 SPECIFICATION: ASTM A-123

TEST SAMPLE NUMBER	SURFACE AREA (S.F.)	WEIGHT PICKLED (gr.)	WEIGHT GALVANIZED (gr.)	WEIGHT DIFF. (gr.)	WEIGHT DIFF. (oz.)	WEIGHT ZINC CTG. (oz/SF)
46-2W	0.1887	409.0	439.2	30.2	1.065	5.64
5F	0.1091	300.7	314.6	13.9	0.490	4.49
5W	0.1710	391.5	416.7	25.2	0.889	5.19
47-2F	0.1392	378.1	399.3	21.2	0.748	5.37
2W	0.1885	455.6	486.8	31.2	1.102	5.85
3W	0.1855	442.3	470.9	28.6	1.009	5.43
5F	0.1614	447.6	471.9	24.3	0.857	5.31
48-1W	0.1759	390.8	424.7	33.9	1.196	6.79
3F	0.1861	535.2	561.8	26.6	0.938	5.04
4F	0.1871	525.0	550.6	25.6	0.903	4.82
5W	0.1803	402.1	434.0	31.9	1.125	6.24
53-1	1/8" WALL	-	-	-	-	2.23
3	"	-	-	-	-	2.08
54-2	3/16" WALL	-	-	-	-	2.84
5	"	-	-	-	-	2.96
55-1	5/16" WALL	-	-	-	-	1.86
3	"	-	-	-	-	1.79
56-2	7/16" WALL	-	-	-	-	1.80
4	"	-	-	-	-	1.92

TABLE II

Magnetic Gage Measurements
(Galvanized Samples)

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR C-2	OPTR I-3	OPTR E-3	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR I-2	OPTR E-2	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR G-1	OPTR E-2	AVG MILS	AVG OZ/SF
10-1A	4.0	4.0	4.2	3.8	4.00	2.35	2.0	2.0	3.0	2.33	1.37	5.0	5.0	5.0	5.00	2.94
B	3.7	4.0	3.9	3.8	3.85	2.26	2.5	1.2	2.0	1.90	1.12	4.0	4.0	4.0	4.00	2.35
C	4.0	4.2	3.8	4.0	4.00	2.35	1.8	1.8	2.0	1.87	1.10	3.4	4.5	4.0	3.97	2.33
D	3.7	3.6	3.6	3.6	3.62	2.13	2.0	2.0	3.0	2.33	1.37	3.5	4.0	4.0	3.83	2.25
E	4.0	3.8	4.0	3.6	3.85	2.26	2.6	1.8	2.0	2.13	1.25	3.6	3.5	4.0	3.70	2.18
Avg.Mils	3.88	3.92	3.90	3.76	3.86		2.18	1.76	2.40	2.11		3.90	4.20	4.20	4.10	
Avg.OZ/SF	2.28	2.31	2.29	2.21		2.27	1.28	1.04	1.41		1.24	2.29	2.47	2.47		2.41
10-2A	4.2	4.2	3.9	3.6	3.98	2.34	3.5	2.6	2.0	2.70	1.59	4.0	4.0	4.0	4.00	2.35
B	4.2	4.0	3.9	4.0	4.02	2.37	2.0	2.6	2.5	2.37	1.39	3.6	4.5	3.0	3.70	2.18
C	3.8	3.8	3.9	3.4	3.72	2.19	2.6	2.3	2.3	2.40	1.41	3.6	5.0	4.0	4.20	2.47
D	4.1	4.0	3.8	3.7	3.90	2.29	3.5	4.0	2.5	3.33	1.96	4.5	5.0	4.0	4.50	2.65
E	4.5	4.0	3.8	4.3	4.15	2.44	3.3	2.8	2.5	2.87	1.69	4.5	5.0	4.0	4.50	2.65
Avg.Mils	4.16	4.00	3.86	3.80	3.95		2.98	2.86	2.36	2.73		4.04	4.70	3.80	4.18	
Avg.OZ/SF	2.45	2.35	2.27	2.24		2.33	1.75	1.68	1.39		1.61	2.38	2.76	2.24		2.46
10-3A	4.2	4.2	4.2	3.9	4.12	2.43	4.0	2.2	4.0	3.40	2.00	4.0	4.5	4.5	4.33	2.55
B	4.2	3.8	3.8	3.6	3.85	2.26	3.5	2.6	3.0	3.03	1.78	3.9	5.0	3.5	4.13	2.43
C	4.3	3.6	4.0	4.1	4.00	2.35	4.0	1.2	3.5	2.90	1.71	3.9	4.5	4.0	4.13	2.43
D	4.8	4.6	INF	4.7	(4.70)	(2.76)	6.0	5.0	4.0	5.00	2.94	5.1	5.5	4.5	5.03	2.96
E	5.0	4.8	INF	INF	(4.90)	(2.88)	4.5	5.0	5.0	4.83	2.84	4.8	5.0	5.5	5.10	3.00
Avg.Mils	4.50	4.20	(4.00)	(4.08)	(4.20)		4.40	3.20	3.90	3.83		4.34	4.90	4.40	4.54	
Avg.OZ/SF	2.65	2.47	(2.35)	(2.40)		(2.47)	2.59	1.88	2.29		2.25	2.55	2.88	2.59		2.67
10-4A	4.5	4.2	4.5	3.9	4.28	2.51	3.0	2.0	3.5	2.83	1.67	4.8	4.5	4.0	4.43	2.61
B	3.9	4.0	4.4	3.9	4.05	2.38	2.7	3.0	2.5	2.73	1.61	4.0	4.0	3.5	3.83	2.25
C	INF	4.6	INF	INF	(4.60)	(2.71)	4.2	3.0	4.0	3.73	2.20	4.0	5.5	4.5	4.67	2.74
D	INF	5.0	INF	INF	(5.00)	(2.94)	6.0	3.9	5.2	5.03	2.96	5.2	5.0	5.5	5.23	3.08
E	4.8	4.6	INF	INF	(4.70)	(2.76)	5.0	3.2	3.5	3.90	2.29	5.1	5.5	5.0	5.20	3.06
Avg.Mils	(4.40)	4.48	(4.45)	(3.90)	(4.31)		4.18	3.02	3.74	3.64		4.62	4.90	4.50	4.67	
Avg.OZ/SF	(2.59)	2.64	(2.62)	(2.29)		(2.53)	2.46	1.78	2.20		2.15	2.72	2.88	2.65		2.75

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR C-2	OPTR I-3	OPTR E-3	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR I-2	OPTR E-2	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR G-1	OPTR E-2	AVG MILS	AVG OZ/SF
10-5A	3.9	3.4	3.4	3.3	3.50	2.06	4.0	1.1	2.5	2.53	1.49	3.7	4.5	3.5	3.90	2.29
B	4.0	3.8	3.7	3.4	3.73	2.19	3.0	1.2	3.0	2.40	1.41	4.0	4.0	4.5	4.17	2.45
C	4.0	3.7	4.3	3.7	3.92	2.31	3.5	1.4	3.0	2.63	1.55	4.0	3.5	4.0	3.83	2.25
D	4.9	4.6	5.0	4.5	4.75	2.79	4.0	2.4	4.2	3.53	2.08	4.3	4.5	5.0	4.60	2.71
E	INF	4.7	INF	INF	(4.70)	(2.76)	5.0	3.8	5.0	4.60	2.71	5.0	5.5	5.0	5.17	3.04
Avg.Mils	(4.20)	4.04	(4.10)	(3.72)	(4.02)		3.90	1.98	3.54	3.14		4.20	4.40	4.40	4.33	
Avg.OZ/SF	(2.47)	2.38	(2.41)	(2.19)		(2.36)	2.29	1.16	2.08		1.85	2.47	2.59	2.59		2.55
11-1A	INF	INF	INF	INF	-	-	6.0	5.5	5.5	5.67	3.33	6.2	7.0	6.5	6.57	3.86
B	INF	INF	INF	INF	-	-	6.0	5.5	5.0	5.50	3.24	6.2	6.5	6.0	6.23	3.67
C	INF	INF	INF	INF	-	-	6.0	5.5	6.0	5.83	3.43	7.0	6.5	7.0	6.83	4.02
D	INF	INF	INF	INF	-	-	6.0	6.0	6.0	6.00	3.53	7.0	7.0	7.0	7.00	4.12
E	INF	INF	INF	INF	-	-	5.5	6.1	5.5	5.70	3.35	6.5	6.5	6.0	6.33	3.73
Avg.Mils	-	-	-	-	-		5.90	5.72	5.60	5.74		6.58	6.70	6.50	6.56	
Avg.OZ/SF	-	-	-	-		-	3.47	3.36	3.29		3.38	3.87	3.94	3.82		3.88
11-2A	INF	INF	INF	INF	-	-	7.0	7.2	7.5	7.23	4.25	8.0	8.0	8.0	8.00	4.71
B	INF	INF	INF	INF	-	-	6.0	6.2	6.5	6.23	3.67	8.0	9.0	8.0	8.33	4.90
C	INF	INF	INF	INF	-	-	7.0	7.2	6.5	6.90	4.06	8.0	9.0	8.0	8.33	4.90
D	INF	INF	INF	INF	-	-	6.0	6.1	6.0	6.03	3.55	8.0	8.0	7.0	7.67	4.51
E	INF	INF	INF	INF	-	-	5.5	6.8	6.5	6.27	3.69	8.0	8.0	7.5	7.83	4.61
Avg. Mils	-	-	-	-	-		6.30	6.70	6.60	6.53		8.00	8.40	7.70	8.03	
Avg.OZ/SF	-	-	-	-		-	3.71	3.94	3.88		3.84	4.71	4.94	4.53		4.73
11-3A	INF	INF	INF	INF	-	-	7.0	8.0	6.5	7.17	4.22	8.0	8.0	8.5	8.17	4.80
B	INF	INF	INF	INF	-	-	6.0	8.0	6.5	6.83	4.02	8.0	8.0	8.5	8.17	4.80
C	INF	INF	INF	INF	-	-	6.0	7.5	6.5	6.67	3.92	8.0	8.0	8.0	8.00	4.71
D	INF	INF	INF	INF	-	-	6.0	6.8	6.5	6.43	3.78	7.5	8.0	8.0	7.83	4.61
E	INF	INF	INF	INF	-	-	6.0	5.8	6.5	6.10	3.59	7.5	8.0	8.0	7.83	4.61
Avg.Mils	-	-	-	-	-		6.20	7.22	6.50	6.64		7.80	8.00	8.20	8.00	
Avg.OZ/SF	-	-	-	-		-	3.65	4.25	3.82		3.91	4.59	4.71	4.82		4.71

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR C-2	OPTR I-3	OPTR E-3	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR I-2	OPTR E-2	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR G-1	OPTR E-2	AVG MILS	AVG OZ/SF
11-4A	INF	INF	INF	INF	-	-	4.5	5.8	5.5	5.26	3.10	6.5	8.0	7.5	7.33	4.31
B	INF	INF	INF	INF	-	-	5.0	5.5	5.0	5.17	3.04	6.8	7.5	7.0	7.10	4.18
C	INF	INF	INF	INF	-	-	5.0	5.7	5.3	5.33	3.14	6.5	7.0	7.0	6.83	4.02
D	INF	INF	INF	INF	-	-	4.7	5.1	4.7	4.83	2.84	6.0	6.5	7.0	6.50	3.82
E	INF	INF	INF	INF	-	-	4.8	4.8	5.5	4.03	2.96	6.0	6.5	7.5	6.67	3.92
Avg. Mils	-	-	-	-	-		4.80	5.38	5.20	5.12		6.36	7.10	7.20	6.89	
Avg.OZ/SF	-	-	-	-		-	2.82	3.16	3.06		3.01	3.74	4.18	4.23		4.05
11-5A	INF	INF	INF	INF	-	-	5.0	6.8	6.5	6.10	3.59	8.0	8.0	8.5	8.17	4.80
B	INF	INF	INF	INF	-	-	6.0	7.3	6.6	6.63	3.90	8.0	9.0	8.5	8.50	5.00
C	INF	INF	INF	INF	-	-	6.0	8.0	8.0	7.33	4.31	8.0	9.0	8.5	8.50	5.00
D	INF	INF	INF	INF	-	-	5.5	6.2	6.5	6.07	3.57	8.0	7.5	7.5	7.67	4.51
E	INF	INF	INF	INF	-	-	5.5	7.5	6.3	6.43	3.78	7.5	7.5	7.0	7.33	4.31
Avg. Mils	-	-	-	-	-		5.60	7.16	6.78	6.51		7.90	8.20	8.00	8.03	
Avg.OZ/SF	-	-	-	-		-	3.29	4.21	3.99		3.83	4.65	4.82	4.71		4.73
12-1A	3.9	4.4	4.4	4.7	4.35	2.56	3.0	3.4	3.0	3.13	1.84	3.5	4.0	6.0	4.50	2.65
B	4.2	4.6	4.3	4.4	4.38	2.57	3.0	3.2	2.5	2.90	1.71	4.5	4.0	5.5	4.67	2.74
C	4.1	4.4	4.1	4.4	4.25	2.50	3.5	3.4	2.5	3.13	1.84	4.0	4.5	4.5	4.33	2.55
D	3.8	4.0	3.6	3.9	3.82	2.25	3.0	1.8	1.3	2.03	1.20	3.5	3.5	4.0	3.67	2.16
E	4.0	4.0	4.1	3.9	4.00	2.35	2.0	2.2	1.5	1.90	1.12	3.5	5.0	5.0	4.50	2.65
Avg. Mils	4.00	4.28	4.10	4.26	4.16		2.90	2.80	2.16	2.62		3.80	4.20	5.00	4.33	
Avg.OZ/SF	2.35	2.52	2.41	2.51		2.45	1.71	1.65	1.27		1.54	2.24	2.47	2.94		2.55
12-2A	4.5	4.8	4.6	INF	(4.63)	(2.73)	2.5	2.6	2.4	2.50	1.47	4.0	4.0	5.5	4.50	2.65
B	4.4	4.6	4.3	INF	(4.43)	(2.55)	2.5	3.4	1.8	2.57	1.51	4.0	4.0	5.5	4.50	2.65
C	4.9	5.0	5.2	INF	(5.03)	(2.96)	3.5	2.8	2.6	2.97	1.74	4.3	4.0	5.5	4.60	2.71
D	4.2	5.0	INF	4.9	(4.70)	(2.76)	3.5	2.8	2.0	2.77	1.63	4.0	4.5	4.0	4.17	2.45
E	4.5	4.8	INF	INF	(4.65)	(2.74)	2.5	2.3	1.7	2.17	1.27	3.5	4.0	4.5	4.00	2.35
Avg. Mils	4.50	4.84	(4.70)	(4.90)	(4.74)		2.90	2.78	2.10	2.60		3.96	4.10	5.00	4.35	
Avg.OZ/SF	2.65	2.85	(2.76)	(2.88)		(2.79)	1.71	1.64	1.24		1.53	2.33	2.41	2.94		2.56

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR C-2	OPTR I-3	OPTR E-3	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR I-2	OPTR E-2	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR G-1	OPTR E-2	AVG MILS	AVG OZ/SF
12-3A	INF	5.0	INF	INF	(5.00)	(2.94)	3.5	6.0	4.3	4.60	2.71	6.0	5.0	5.0	5.33	3.14
B	4.5	5.0	INF	4.8	(4.77)	(2.80)	4.0	3.0	3.3	3.43	2.02	5.0	5.5	5.5	5.33	3.14
C	4.6	5.0	5.0	INF	(4.87)	(2.86)	4.0	2.8	3.2	3.33	1.96	4.5	4.5	4.5	4.50	2.65
D	4.0	4.4	4.2	4.5	4.28	2.51	3.7	3.8	1.9	3.13	1.84	4.0	4.0	4.5	4.17	2.45
E	4.1	4.8	4.2	4.5	4.40	2.59	4.2	4.9	2.9	4.00	2.35	4.3	5.5	4.5	4.77	2.80
Avg. Mils	(4.30)	4.84	(4.47)	(4.60)	(4.55)		3.88	4.10	3.12	3.70		4.76	4.90	4.80	4.82	
Avg.OZ/SF	(2.53)	2.85	(2.63)	(2.71)		(2.68)	2.28	2.41	1.84		2.18	2.80	2.88	2.82		2.84
12-4A	4.0	4.2	4.0	4.3	4.12	2.43	4.0	1.8	1.8	2.53	1.49	3.3	4.0	4.0	3.77	2.22
B	4.2	4.4	4.5	4.7	4.45	2.62	3.8	2.7	2.1	2.87	1.69	3.9	4.5	4.5	4.30	2.53
C	4.2	4.4	4.4	4.7	4.42	2.60	5.5	4.8	3.3	4.53	2.67	4.5	5.5	5.0	5.00	2.94
D	4.4	4.8	4.4	4.7	4.58	2.69	3.5	2.7	2.2	2.80	1.65	4.0	5.0	5.0	4.67	2.74
E	4.6	4.6	4.6	4.9	4.68	2.75	3.5	3.0	2.5	3.00	1.76	4.0	5.0	5.5	4.83	2.84
Avg. Mils	4.28	4.48	4.38	4.66	4.45		4.06	3.00	2.38	3.15		3.94	4.80	4.80	4.51	
Avg.OZ/SF	2.52	2.64	2.58	2.74		2.62	2.39	1.76	1.40		1.85	2.32	2.82	2.82		2.65
12-5A	INF	INF	INF	INF	-	-	5.0	8.0	4.2	5.73	3.37	5.5	5.5	6.0	5.67	3.33
B	INF	INF	INF	INF	-	-	6.0	5.1	4.3	5.13	3.02	6.0	5.5	7.5	6.33	3.72
C	4.5	INF	INF	INF	-	-	5.5	3.5	2.9	3.97	2.33	5.5	5.5	6.5	5.83	3.43
D	INF	INF	INF	INF	-	-	5.0	3.2	4.4	4.20	2.47	5.0	6.5	6.0	5.83	3.43
E	INF	INF	INF	INF	-	-	6.0	4.2	4.3	4.83	2.84	5.5	5.5	6.0	5.67	3.33
Avg. Mils	-	-	-	-	-		5.50	4.80	4.02	4.77		5.50	5.70	6.40	5.87	
Avg.OZ/SF	-	-	-	-		-	3.24	2.82	2.36		2.81	3.24	3.35	3.76		3.45
13-1A	4.0	4.4	3.8	4.5	4.18	2.46	2.0	2.5	1.9	2.13	1.25	3.5	4.0	4.5	4.00	2.35
B	3.3	4.6	3.9	4.7	4.12	2.43	2.5	2.6	2.3	2.47	1.45	3.5	4.0	4.0	3.83	2.25
C	3.0	4.0	3.7	3.8	3.62	2.13	1.5	2.0	2.2	1.90	1.12	3.3	3.5	4.0	3.60	2.12
D	3.4	4.0	3.9	3.8	3.78	2.22	1.5	1.9	1.9	1.77	1.04	3.0	4.5	4.0	3.83	2.25
E	3.3	4.2	3.5	4.0	3.75	2.21	1.0	2.5	1.5	1.67	0.98	3.0	4.0	3.5	3.50	2.06
Avg. Mils	3.40	4.24	3.76	4.16	3.89		1.70	2.30	1.96	1.99		3.26	4.00	4.00	3.75	
Avg.OZ/SF	2.00	2.49	2.21	2.45		2.29	1.00	1.35	1.15		1.17	1.92	2.35	2.35		2.21

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR C-2	OPTR I-3	OPTR E-3	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR I-2	OPTR E-2	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR G-1	OPTR E-2	AVG MILS	AVG OZ/SF
13-2A	3.5	4.2	4.0	4.2	3.98	2.34	3.0	2.6	1.9	2.50	1.47	3.5	4.5	3.5	3.83	2.25
B	3.4	4.2	3.9	4.1	3.90	2.29	2.0	2.9	1.3	2.07	1.22	3.8	4.0	4.0	3.93	2.31
C	3.7	4.4	3.8	4.2	4.02	2.37	3.0	3.8	3.4	3.40	2.00	4.8	5.0	5.0	4.93	2.90
D	2.8	3.8	3.8	4.0	3.60	2.12	2.0	2.4	1.4	1.93	1.14	3.5	3.5	3.5	3.50	2.06
E	4.0	3.8	3.5	4.4	3.92	2.31	1.5	2.1	1.5	1.70	1.00	3.0	4.0	4.0	3.67	2.16
Avg. Mils	3.48	4.08	3.80	4.18	3.88		2.30	2.76	1.90	2.32		3.72	4.20	4.00	3.97	
Avg.OZ/SF	2.05	2.40	2.24	2.46		2.29	1.35	1.62	1.12		1.36	2.19	2.47	2.35		2.34
13-3A	2.9	3.6	3.2	3.5	3.30	1.94	3.0	4.0	1.9	2.97	1.74	3.5	4.0	3.5	3.67	2.16
B	3.4	4.2	3.4	4.0	3.75	2.21	2.5	3.2	1.4	2.37	1.39	3.0	4.5	3.5	3.67	2.16
C	3.1	4.2	3.4	4.4	3.78	2.22	2.5	3.3	3.4	3.07	1.80	3.5	3.5	3.5	3.50	2.06
D	3.6	4.0	3.4	3.7	3.68	2.16	2.0	3.5	1.4	2.30	1.35	3.3	4.5	3.5	3.77	2.22
E	3.6	4.0	4.1	4.0	3.92	2.31	2.0	4.0	2.0	2.67	1.57	4.0	4.0	3.5	3.83	2.25
Avg. Mils	3.32	4.00	3.50	3.92	3.69		2.40	3.60	2.02	2.68		3.46	4.10	3.50	3.69	
Avg.OZ/SF	1.95	2.35	2.06	2.31		2.17	1.41	2.12	1.19		1.57	2.04	2.41	2.06		2.17
13-4A	3.2	3.6	3.2	3.5	3.38	1.98	1.0	4.0	1.5	2.17	1.27	3.0	3.5	3.0	3.17	1.86
B	2.8	3.4	3.1	3.9	3.30	1.94	2.0	3.0	1.4	2.13	1.25	3.0	3.5	3.0	3.17	1.86
C	3.5	4.0	3.0	4.1	3.65	2.15	3.0	2.8	1.4	2.40	1.41	3.0	3.0	3.0	3.00	1.76
D	3.2	4.6	3.0	4.0	3.70	2.18	3.0	2.4	2.1	2.50	1.47	3.5	3.5	4.0	3.67	2.16
E	3.1	4.2	3.9	4.0	3.80	2.24	2.5	1.5	0.9	1.63	0.96	3.0	3.0	3.0	3.00	1.76
Avg. Mils	3.16	3.96	3.24	3.90	3.57		2.30	2.74	1.46	2.17		3.10	3.30	3.20	3.20	
Avg.OZ/SF	1.86	2.33	1.91	2.29		2.10	1.35	1.61	0.86		1.27	1.82	1.94	1.88		1.88
13-5A	3.7	4.2	3.8	4.4	4.02	2.37	2.0	2.9	2.0	2.30	1.35	3.5	4.0	3.5	3.67	2.16
B	3.5	4.0	3.5	3.8	3.70	2.18	2.0	2.6	1.9	2.17	1.27	3.5	3.5	4.0	3.67	2.16
C	3.0	4.0	3.5	4.1	3.65	2.15	1.6	1.9	1.0	1.50	0.88	3.5	3.5	3.5	3.50	2.06
D	2.8	3.8	3.7	3.5	3.45	2.03	1.0	1.8	1.4	1.40	0.82	3.0	3.5	3.5	3.33	1.96
E	3.0	4.0	3.5	3.7	3.55	2.09	0.5	1.4	0.8	0.90	0.53	3.0	3.5	3.0	3.17	1.86
Avg. Mils	3.20	4.00	3.60	3.90	3.67		1.42	2.12	1.42	1.65		3.30	3.60	3.50	3.47	
Avg.OZ/SF	1.88	2.35	2.12	2.29		2.16	0.84	1.25	0.84		0.97	1.94	2.12	2.06		2.04

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR C-2	OPTR I-3	OPTR E-3	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR I-2	OPTR E-2	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR G-1	OPTR E-2	AVG MILS	AVG OZ/SF
14-1A	3.6	4.2	3.7	4.2	3.92	2.31	4.0	2.2	2.2	2.80	1.65	3.5	3.5	3.0	3.33	1.96
B	3.0	3.6	3.3	4.0	3.48	2.04	3.5	3.1	2.5	3.03	1.78	3.5	4.0	3.5	3.67	2.16
C	3.7	4.0	3.6	3.9	3.80	2.24	3.5	2.0	1.3	2.27	1.33	3.5	3.0	4.0	3.50	2.06
D	3.3	3.8	3.7	4.2	3.75	2.21	3.0	2.5	1.8	2.43	1.43	3.3	3.0	3.5	3.27	1.92
E	2.7	4.0	2.9	3.8	3.35	1.97	3.0	3.3	1.8	2.70	1.59	3.5	3.0	3.5	3.33	1.96
Avg. Mils	3.26	3.92	3.44	4.02	3.66		3.40	2.62	1.92	2.65		3.46	3.30	3.50	3.42	
Avg.OZ/SF	1.92	2.31	2.02	2.36		2.15	2.00	1.54	1.13		1.56	2.04	1.94	2.06		2.01
14-2A	3.0	3.2	2.9	3.5	3.15	1.85	4.0	4.0	2.6	3.53	2.08	3.3	3.5	3.0	3.27	1.92
B	3.0	3.4	3.3	3.5	3.30	1.94	5.0	1.7	1.2	2.57	1.51	2.5	3.0	4.0	3.17	1.86
C	2.4	3.0	2.8	3.3	2.88	1.69	3.5	1.7	1.3	2.17	1.27	2.8	3.0	3.0	2.93	1.73
D	2.7	3.6	3.2	4.0	3.38	1.98	3.0	2.3	1.5	2.27	1.33	2.5	3.0	3.0	2.83	1.67
E	2.6	3.4	3.0	3.3	3.08	1.81	3.0	1.5	1.4	1.97	1.16	3.0	3.0	3.0	3.00	1.76
Avg. Mils	2.74	3.32	3.04	3.52	3.16		3.70	2.24	1.60	2.50		2.82	3.10	3.20	3.04	
Avg.OZ/SF	1.61	1.95	1.79	2.07		1.86	2.18	1.32	0.94		1.47	1.66	1.82	1.88		1.79
14-3A	2.8	3.8	3.6	3.6	3.45	2.03	2.5	2.2	2.2	2.30	1.35	3.2	4.0	3.0	3.40	2.00
B	2.9	4.0	3.7	3.9	3.62	2.13	2.5	2.8	1.4	2.23	1.31	3.5	3.5	3.5	3.50	2.06
C	3.5	4.2	3.3	3.7	3.68	2.16	2.0	2.2	1.4	1.87	1.10	3.3	3.5	3.0	3.27	1.92
D	3.3	4.0	3.5	4.0	3.70	2.18	3.0	2.5	2.0	2.50	1.47	3.5	4.5	4.5	4.17	2.45
E	2.9	3.6	3.3	3.5	3.32	1.96	4.0	2.0	1.8	2.60	1.53	3.5	4.5	3.5	3.83	2.25
Avg. Mils	3.08	3.92	3.48	3.74	3.55		2.80	2.34	1.76	2.30		3.40	4.00	3.50	3.63	
Avg.OZ/SF	1.81	2.31	2.05	2.20		2.09	1.65	1.38	1.04		1.35	2.00	2.35	2.06		2.14
14-4A	3.2	3.6	3.7	3.8	3.58	2.10	2.5	2.3	1.2	2.00	1.18	3.3	3.5	3.5	3.43	2.02
B	3.8	3.2	3.4	3.5	3.48	2.04	2.5	2.6	1.8	2.30	1.35	3.0	3.5	3.5	3.33	1.96
C	3.2	3.6	3.5	4.1	3.60	2.12	3.0	2.7	1.8	2.50	1.47	3.5	4.0	3.5	3.67	2.16
D	3.5	4.2	3.8	4.5	4.00	2.35	5.0	2.4	2.2	3.20	1.88	3.5	5.0	4.0	4.17	2.45
E	3.0	3.6	3.6	3.6	3.45	2.03	2.5	3.0	1.9	2.47	1.45	3.2	4.5	3.0	3.57	2.10
Avg. Mils	3.34	3.64	3.60	3.90	3.62		3.10	2.60	1.78	2.49		3.30	4.10	3.50	3.63	
Avg.OZ/SF	1.96	2.14	2.12	2.29		2.13	1.82	1.53	1.05		1.47	1.94	2.41	2.06		2.14

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR C-2	OPTR I-3	OPTR E-3	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR I-2	OPTR E-2	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR G-1	OPTR E-2	AVG MILS	AVG OZ/SF
14-5A	3.0	4.0	3.5	4.3	3.70	2.17	2.5	1.6	0.9	1.67	0.98	2.8	3.5	3.0	3.10	1.82
B	2.9	3.4	3.2	3.7	3.30	1.94	2.7	3.0	1.6	2.43	1.43	3.0	4.0	3.5	3.50	2.06
C	3.3	3.8	3.7	4.5	3.82	2.24	2.5	2.4	2.0	2.30	1.35	3.2	4.0	3.0	3.40	2.00
D	2.9	3.8	3.3	3.5	3.37	1.98	2.0	2.0	1.7	1.90	1.12	3.5	4.0	3.5	3.67	2.16
E	2.8	3.4	3.4	3.2	3.20	1.88	2.5	1.8	1.8	2.03	1.20	3.3	4.0	3.5	3.60	2.12
Avg. Mils	2.98	3.68	3.42	3.84	3.48		2.44	2.16	1.58	2.07		3.16	3.90	3.30	3.45	
Avg.OZ/SF	1.75	2.16	2.01	2.26		2.05	1.44	1.27	0.93		1.22	1.86	2.29	1.94		2.03
15-1A	3.5	3.8	4.0	3.8	3.78	2.22	1.7	3.5	2.6	2.60	1.53	4.0	5.0	3.5	4.17	2.45
B	3.7	3.6	3.8	3.3	3.60	2.12	1.5	2.4	2.0	1.97	1.16	3.5	4.5	3.5	3.83	2.25
C	3.9	4.0	3.8	4.3	4.00	2.35	1.5	2.2	1.9	1.87	1.10	3.5	4.0	3.5	3.67	2.16
D	3.6	4.0	3.6	4.2	3.85	2.26	2.0	2.2	1.7	1.97	1.16	3.3	4.5	3.0	3.60	2.12
E	3.4	3.8	3.7	3.9	3.70	2.18	2.0	3.1	2.0	2.37	1.39	4.0	4.5	4.0	4.17	2.45
Avg. Mils	3.62	3.84	3.78	3.90	3.79		1.74	2.68	2.04	2.16		3.66	4.50	3.50	3.89	
Avg.OZ/SF	2.13	2.26	2.22	2.29		2.23	1.02	1.58	1.20		1.27	2.15	2.65	2.06		2.29
15-2A	INF	INF	4.9	INF	(4.90)	(2.88)	3.0	5.4	4.5	4.30	2.53	5.5	5.0	5.0	5.17	3.04
B	4.0	4.2	4.1	4.4	4.18	2.46	2.5	3.4	3.0	2.97	1.74	4.5	5.0	4.5	4.67	2.74
C	INF	INF	4.7	INF	(4.70)	(2.76)	4.0	4.1	4.6	4.23	2.49	5.0	5.5	5.5	5.33	3.14
D	INF	INF	INF	INF	INF	(3+)	4.0	5.6	5.5	5.03	2.96	6.0	6.0	6.0	6.00	3.53
E	4.4	4.8	4.6	INF	(4.60)	(2.71)	2.5	4.2	2.2	2.97	1.74	4.0	5.0	4.5	4.50	2.65
Avg. Mils	(4.20)	(4.50)	(4.58)	(4.40)	(4.42)		3.20	4.54	3.96	3.90		5.00	5.30	5.10	5.13	
Avg.OZ/SF	(2.47)	(2.65)	(2.69)	(2.59)		(2.60)	1.88	2.67	2.33		2.29	2.94	3.12	3.00		3.02
15-3A	INF	5.0	5.0	INF	(5.00)	(2.94)	2.5	5.0	2.6	3.37	1.98	5.0	5.5	5.5	5.33	3.14
B	4.8	INF	4.8	INF	(4.80)	(2.82)	4.0	5.3	4.6	4.63	2.73	6.0	6.0	5.5	5.83	3.43
C	4.4	4.6	4.6	INF	(4.53)	(2.67)	3.0	2.9	4.1	3.33	1.96	5.0	5.0	5.0	5.00	2.94
D	INF	INF	INF	INF	INF	(3+)	3.5	3.7	4.0	3.73	2.20	5.5	6.0	5.0	5.50	3.24
E	4.5	4.8	4.6	INF	(4.63)	(2.73)	3.5	4.2	3.4	3.70	2.18	4.5	5.0	4.5	4.67	2.74
Avg. Mils	(4.57)	(4.80)	(4.75)	INF	(4.71)		3.30	4.22	3.74	3.75		5.20	5.50	5.10	5.27	
Avg.OZ/SF	(2.69)	(2.82)	(2.79)	(3+)		(2.77)	1.94	2.48	2.20		2.21	3.06	3.24	3.00		3.10

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR C-2	OPTR I-3	OPTR E-3	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR I-2	OPTR E-2	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR G-1	OPTR E-2	AVG MILS	AVG OZ/SF
15-4A	3.6	4.0	4.0	4.3	3.87	2.27	2.0	2.7	1.9	2.20	1.29	3.5	4.5	3.5	3.83	2.25
B	3.8	4.0	3.7	4.2	3.83	2.25	2.0	2.8	2.3	2.37	1.39	4.0	5.0	4.0	4.33	2.55
C	4.1	4.4	4.5	INF	(4.33)	(2.55)	2.0	2.8	2.5	2.43	1.43	4.0	4.5	4.0	4.17	2.45
D	3.9	4.0	3.6	4.4	3.83	2.25	1.5	2.9	2.6	2.33	1.37	3.8	4.0	3.5	3.77	2.22
E	4.0	4.4	3.9	4.3	4.10	2.41	1.5	2.9	3.3	2.57	1.51	3.8	4.0	4.0	3.93	2.31
Avg. Mils	3.88	4.16	3.94	(4.30)	(4.07)		1.80	2.82	2.52	2.38		3.82	4.40	3.80	4.01	
Avg.OZ/SF	2.28	2.45	2.32	(2.53)		(2.39)	1.06	1.66	1.48		1.40	2.25	2.59	2.24		2.36
15-5A	3.8	3.8	4.0	4.0	3.90	2.29	1.5	2.7	2.9	2.37	1.39	3.5	4.0	3.5	3.67	2.16
B	4.3	4.6	3.8	4.6	4.32	2.54	2.5	2.4	1.5	2.13	1.29	3.8	3.5	3.5	3.60	2.12
C	3.5	4.4	3.6	4.4	3.97	2.34	2.0	2.9	2.5	2.47	1.45	4.0	4.5	4.5	4.33	2.55
D	3.6	4.2	3.8	4.0	3.90	2.29	2.5	2.3	2.5	2.43	1.43	4.0	4.0	4.5	4.17	2.45
E	3.7	4.0	3.3	3.6	3.65	2.15	2.0	2.7	2.4	2.37	1.39	4.0	4.5	4.0	4.17	2.45
Avg. Mils	3.78	4.20	3.70	4.12	3.95		2.10	2.60	2.36	2.35		3.86	4.10	4.00	3.99	
Avg.OZ/SF	2.23	2.47	2.18	2.42		2.32	1.24	1.53	1.39		1.38	2.27	2.41	2.35		2.35

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-1	OPTR C-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-2	OPTR I-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
20-1A	4.2	3.7	3.8		3.90	2.29	1.8	2.0	2.3	2.03	1.20	5.0	3.5	3.5	4.00	2.35
B	3.7	3.6	3.6		3.63	2.14	1.7	2.0	2.5	2.07	1.22	4.5	3.5	3.5	3.83	2.25
C	3.7	3.6	3.8		3.70	2.18	2.2	2.0	3.0	2.40	1.41	4.5	3.5	4.0	4.00	2.35
D	4.0	3.8	3.9		3.90	2.29	2.3	2.0	3.0	2.43	1.43	5.0	3.5	4.0	4.17	2.45
E	4.0	4.0	3.5		3.83	2.25	2.1	2.5	3.1	2.57	1.51	5.0	3.7	4.0	4.23	2.49
Avg. Mils	3.92	3.74	3.72		3.79		2.02	2.10	2.78	2.30		4.80	3.54	3.80	4.05	
Avg.OZ/SF	2.31	2.20	2.19			2.23	1.19	1.24	1.64		1.35	2.82	2.08	2.24		2.38
20-2A	3.6	3.9	3.9		3.80	2.24	1.3	2.0	3.0	2.10	1.24	4.5	3.5	3.0	3.67	2.16
B	3.4	3.8	3.5		3.57	2.10	1.1	1.0	1.7	1.27	0.74	4.0	3.3	4.0	3.77	2.22
C	3.5	3.1	3.4		3.33	1.96	1.6	2.0	2.2	1.93	1.14	4.0	3.7	4.0	3.90	2.29
D	3.8	3.9	3.9		3.87	2.27	2.0	1.8	2.5	2.10	1.24	5.0	3.5	4.0	4.17	2.45
E	3.7	3.9	4.1		3.90	2.29	1.7	1.8	2.4	1.97	1.16	4.5	3.5	4.0	4.00	2.35
Avg. Mils	3.60	3.72	3.76		3.69		1.54	1.72	2.36	1.87		4.40	3.50	3.80	3.90	
Avg.OZ/SF	2.12	2.19	2.21			2.17	0.91	1.01	1.39		1.10	2.59	2.06	2.24		2.30
20-3A	3.6	3.5	3.7		3.60	2.12	1.2	2.0	2.1	1.77	1.04	4.0	3.5	3.5	3.67	2.16
B	3.5	3.3	3.8		3.53	2.08	1.3	2.0	2.9	2.07	1.22	3.5	3.3	3.5	3.43	2.02
C	3.6	3.4	3.7		3.57	2.10	1.2	2.0	2.6	1.93	1.14	4.0	3.5	4.0	3.83	2.25
D	4.2	4.0	3.9		4.03	2.37	1.8	3.0	2.8	2.53	1.49	4.0	3.7	4.0	3.90	2.29
E	4.0	3.5	4.0		3.83	2.25	1.2	2.5	2.2	1.97	1.16	4.0	3.3	3.5	3.60	2.12
Avg. Mils	3.78	3.54	3.82		3.71		1.34	2.30	2.52	2.05		3.90	3.46	3.70	3.69	
Avg.OZ/SF	2.22	2.08	2.25			2.18	0.79	1.35	1.48		1.21	2.29	2.04	2.18		2.17
20-4A	3.4	3.1	3.6		3.37	1.98	1.1	1.0	1.9	1.33	0.78	4.0	3.3	3.0	3.43	2.02
B	3.6	3.8	4.1		3.83	2.25	1.4	2.0	3.1	2.17	1.27	4.0	3.5	4.0	3.83	2.25
C	3.6	3.3	3.6		3.50	2.06	0.8	1.5	1.9	1.40	0.82	3.5	3.0	3.0	3.17	1.86
D	3.7	3.8	3.8		3.77	2.22	1.0	1.5	2.6	1.70	1.00	4.5	3.5	3.5	3.83	2.25
E	3.5	3.2	3.6		3.43	2.02	1.2	1.5	2.3	1.67	0.98	4.0	3.5	3.5	3.67	2.16
Avg. Mils	3.56	3.44	3.74		3.58		1.10	1.50	2.36	1.65		4.00	3.36	3.40	3.59	
Avg.OZ/SF	2.09	2.02	2.20			2.11	0.65	0.88	1.39		0.97	2.35	1.98	2.00		2.11

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 13-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-1	OPTR C-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-2	OPTR I-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
20-5A	3.7	3.6	4.0		3.77	2.22	1.7	1.5	2.5	1.90	1.12	4.5	3.8	3.5	3.93	2.31
B	3.5	3.5	3.7		3.57	2.10	1.2	1.5	2.3	1.67	0.98	4.5	3.5	3.5	3.83	2.25
C	3.5	3.7	4.0		3.73	2.20	1.4	2.0	2.6	2.00	1.18	4.5	3.5	4.0	4.00	2.35
D	3.8	3.7	3.8		3.77	2.22	1.5	1.6	2.8	1.97	1.16	4.0	3.7	3.5	3.73	2.20
E	3.7	3.7	3.9		3.77	2.22	1.5	2.0	2.9	2.13	1.25	4.5	3.5	4.0	4.00	2.35
Avg.Mils	3.64	3.64	3.88		3.72		1.46	1.72	2.62	1.93		4.40	3.60	3.70	3.90	
Avg.OZ/SF	2.14	2.14	2.28			2.19	0.86	1.01	1.54		1.14	2.59	2.12	2.18		2.29
21-1A	INF	INF	INF		-	-	9.5	9.0	11.8	10.10	5.94	14.0	12.0	12.0	12.67	7.45
B	INF	INF	INF		-	-	9.5	9.0	10.8	9.77	5.74	13.0	13.0	12.0	12.67	7.45
C	INF	INF	INF		-	-	11.0	9.0	13.8	11.27	6.63	14.0	13.5	12.0	13.17	7.74
D	INF	INF	INF		-	-	6.2	9.0	7.8	7.67	4.51	10.0	10.0	8.0	9.33	5.49
E	INF	INF	INF		-	-	10.0	9.0	13.8	10.93	6.43	14.0	14.0	13.0	13.67	8.04
Avg. Mils	-	-	-		-		9.24	9.00	11.60	9.95		13.00	12.50	11.40	12.30	
Avg.OZ/SF	-	-	-			-	5.44	5.29	6.82		5.85	7.65	7.35	6.71		7.24
21-2A	INF	INF	INF		-	-	10.0	9.0	11.3	10.10	5.94	11.0	11.0	9.0	10.33	6.08
B	INF	INF	INF		-	-	9.5	4.0	8.3	7.27	4.27	9.0	7.0	7.0	7.67	4.51
C	INF	INF	INF		-	-	4.8	10.0	6.0	6.93	4.08	8.5	7.0	8.0	7.83	4.61
D	INF	INF	INF		-	-	10.5	11.0	13.3	11.60	6.82	15.0	14.0	13.0	14.00	8.24
E	INF	INF	INF		-	-	6.5	9.0	9.8	8.43	4.96	13.0	10.0	10.0	11.00	6.47
Avg. Mils	-	-	-		-		8.26	8.60	9.74	8.87		11.30	9.80	9.40	10.17	
Avg.OZ/SF	-	-	-			-	4.86	5.06	5.73		5.22	6.65	5.76	5.53		5.98
21-3A	INF	INF	INF		-	-	8.5	8.0	8.8	8.43	4.96	12.0	12.0	11.0	11.67	6.86
B	INF	INF	INF		-	-	6.0	8.0	8.8	7.60	4.47	9.0	8.0	9.0	8.67	5.10
C	INF	INF	INF		-	-	7.5	4.0	9.3	6.93	4.08	10.0	8.0	8.0	8.67	5.10
D	INF	INF	INF		-	-	9.5	8.0	10.3	9.27	5.45	13.0	13.0	10.0	12.00	7.06
E	INF	INF	INF		-	-	5.8	4.0	6.3	5.37	3.16	10.0	7.0	8.0	8.33	4.90
Avg. Mils	-	-	-		-		7.46	6.40	8.70	7.52		10.80	9.60	9.20	9.87	
Avg.OZ/SF	-	-	-			-	4.39	3.76	5.12		4.42	6.35	5.65	5.41		5.80

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-1	OPTR C-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-2	OPTR I-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
21-4A	INF	INF	INF		-	-	4.5	4.5	6.4	5.13	3.02	7.0	6.0	6.5	6.50	3.82
B	INF	INF	INF		-	-	4.5	3.0	6.5	4.67	2.74	7.0	6.0	6.0	6.33	3.73
C	INF	INF	INF		-	-	4.2	3.0	6.8	4.67	2.74	6.0	5.5	5.5	5.67	3.33
D	INF	INF	INF		-	-	6.0	5.0	7.8	6.27	3.69	8.0	6.5	6.5	7.00	4.12
E	INF	INF	INF		-	-	10.0	8.0	11.8	9.93	5.84	14.0	11.0	12.0	12.33	7.25
Avg. Mils	-	-	-		-		5.84	4.70	7.86	6.13		8.40	7.00	7.30	7.57	
Avg.OZ/SF	-	-	-			-	3.44	2.76	4.62		3.61	4.94	4.12	4.29		4.45
21-5A	INF	INF	INF		-	-	13.0	9.0	12.3	11.43	6.73	15.0	15.0	15.0	15.00	8.82
B	INF	INF	INF		-	-	10.0	9.0	10.8	9.93	5.84	15.0	11.0	10.0	12.00	7.06
C	INF	INF	INF		-	-	14.0	12.0	12.8	12.93	7.61	15.0	15.0	15.0	15.00	8.82
D	INF	INF	INF		-	-	6.0	5.0	8.3	6.43	3.78	10.0	8.0	9.0	9.00	5.29
E	INF	INF	INF		-	-	3.7	5.0	8.6	5.77	3.39	8.0	7.0	7.0	7.33	4.31
Avg. Mils	-	-	-		-		9.34	8.00	10.56	9.30		12.60	11.20	11.20	11.67	
Avg.OZ/SF	-	-	-			-	5.49	4.71	6.21		5.47	7.41	6.59	6.59		6.86
22-1A	3.4	3.4	3.4		3.40	2.00	1.0	2.5	1.8	1.77	1.04	4.0	3.3	3.5	3.60	2.12
B	3.1	3.8	2.8		3.23	1.90	1.5	2.0	2.1	1.87	1.10	3.5	3.0	3.0	3.17	1.86
C	3.1	2.8	3.2		3.03	1.78	1.2	1.8	2.9	1.97	1.16	3.5	3.0	3.0	3.17	1.86
D	2.9	2.9	3.0		2.93	1.73	1.3	1.8	1.9	1.67	0.98	3.5	3.5	3.5	3.50	2.06
E	3.6	3.4	3.5		3.50	2.06	1.3	1.6	2.7	1.87	1.10	3.5	3.3	3.5	3.43	2.02
Avg. Mils	3.22	3.26	3.18		3.22		1.26	1.94	2.28	1.83		3.60	3.22	3.30	3.37	
Avg.OZ/SF	1.89	1.92	1.87			1.89	0.74	1.14	1.34		1.08	2.12	1.89	1.94		1.98
22-2A	3.6	3.3	3.2		3.37	1.98	1.0	1.8	1.9	1.57	0.92	3.0	3.0	3.5	3.17	1.86
B	3.0	3.0	2.9		2.97	1.74	1.6	2.5	3.0	2.37	1.39	4.0	3.5	3.5	3.67	2.16
C	2.9	3.0	3.0		2.97	1.74	1.7	2.5	2.6	2.27	1.33	3.5	3.0	3.5	3.33	1.96
D	3.2	3.0	3.0		3.07	1.80	1.3	2.0	2.1	1.80	1.06	3.5	3.0	3.0	3.17	1.86
E	3.7	3.5	3.5		3.57	2.10	1.9	2.5	2.5	2.30	1.35	4.0	3.3	3.5	3.60	2.12
Avg. Mils	3.28	3.16	3.12		3.19		1.50	2.26	2.42	2.06		3.60	3.16	3.40	3.39	
Avg.OZ/SF	1.93	1.86	1.84			1.88	0.88	1.33	1.42		1.21	2.12	1.86	2.00		1.99

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-1	OPTR C-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-2	OPTR I-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
22-3A	3.2	3.2	3.0		3.13	1.84	2.0	2.0	1.9	1.97	1.16	3.5	3.3	3.5	3.43	2.02
B	2.9	2.7	3.1		2.90	1.71	1.7	2.0	2.2	1.97	1.16	4.0	3.0	3.0	3.33	1.96
C	3.2	3.0	2.9		3.03	1.78	1.0	2.0	1.6	1.53	0.90	3.5	3.0	3.0	3.17	1.86
D	3.6	4.2	3.7		3.83	2.25	1.1	2.5	2.5	2.03	1.20	4.0	3.5	3.5	3.67	2.16
E	3.5	3.2	3.3		3.33	1.96	1.4	2.0	2.2	1.87	1.10	4.0	3.5	4.0	3.83	2.25
Avg. Mils	3.28	3.26	3.20		3.24		1.44	2.10	2.08	1.87		3.80	3.26	3.40	3.49	
Avg.OZ/SF	1.93	1.92	1.88			1.91	0.85	1.24	1.22		1.10	2.24	1.92	2.00		2.05
22-4A	3.5	3.5	3.4		3.47	2.04	2.0	2.5	2.4	2.30	1.35	4.0	3.5	3.5	3.67	2.16
B	3.7	3.6	3.2		3.50	2.06	1.9	2.5	2.2	2.20	1.29	3.5	3.3	3.5	3.43	2.02
C	3.7	3.5	3.6		3.60	2.12	2.1	2.8	3.2	2.70	1.59	4.0	3.8	4.0	3.93	2.31
D	3.9	3.6	3.5		3.67	2.16	2.0	2.3	2.9	2.40	1.41	3.5	3.5	4.0	3.67	2.16
E	4.0	3.9	3.7		3.87	2.27	2.2	3.5	2.8	2.83	1.67	4.0	4.0	4.0	4.00	2.35
Avg. Mils	3.76	3.62	3.48		3.62		2.04	2.72	2.70	2.49		3.80	3.62	3.80	3.74	
Avg.OZ/SF	2.21	2.13	2.05			2.13	1.20	1.60	1.59		1.46	2.24	2.13	2.24		2.20
22-5A	3.2	3.0	3.0		3.07	1.80	1.2	2.0	2.4	1.87	1.10	3.5	3.3	3.0	3.27	1.92
B	2.9	2.8	2.9		2.87	1.69	1.0	2.0	1.4	1.47	0.86	4.5	3.0	3.0	3.50	2.06
C	3.4	3.0	3.2		3.20	1.88	0.7	2.0	1.9	1.53	0.90	4.0	3.3	3.5	3.60	2.12
D	3.3	3.1	3.3		3.23	1.90	1.0	2.0	1.9	1.63	0.96	4.0	3.0	3.0	3.33	1.96
E	3.1	3.2	3.0		3.10	1.82	1.5	2.0	1.8	1.77	1.04	3.5	3.0	3.5	3.33	1.96
Avg. Mils	3.18	3.02	3.08		3.09		1.08	2.00	1.88	1.65		3.90	3.12	3.20	3.41	
Avg.OZ/SF	1.87	1.78	1.81			1.82	0.64	1.18	1.11		0.97	2.29	1.84	1.88		2.00
23-1A	4.8	4.5	4.9		4.73	2.78	3.8	3.5	4.4	3.90	2.29	7.0	4.8	5.0	5.60	3.29
B	4.4	4.2	4.6		4.40	2.59	3.3	3.8	4.9	4.00	2.35	4.5	4.2	4.0	4.23	2.49
C	3.8	4.3	4.6		4.23	2.49	3.0	2.0	3.1	2.70	1.59	5.0	4.0	4.0	4.33	2.55
D	INF	INF	INF		INF	(3+)	4.1	4.0	6.0	4.70	2.76	6.0	5.0	5.5	5.50	3.24
E	INF	INF	INF		INF	(3+)	3.8	3.0	4.1	3.63	2.14	5.5	5.0	5.5	5.33	3.14
Avg. Mils	(4.33)	(4.33)	(4.70)		(4.45)		3.60	3.26	4.50	3.79		5.60	4.60	4.80	5.00	
Avg.OZ/SF	(2.55)	(2.55)	(2.76)			(2.62)	2.12	1.92	2.65		2.23	3.29	2.71	2.82		2.94

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-1	OPTR C-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-2	OPTR I-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
23-2A	4.2	4.1	4.2		4.17	2.45	3.0	2.5	3.6	3.03	1.78	4.0	4.0	4.0	4.00	2.35
B	4.2	4.0	4.3		4.17	2.45	2.8	2.5	3.1	2.80	1.65	5.5	4.0	4.5	4.67	2.74
C	4.1	4.3	4.2		4.20	2.47	2.0	2.5	3.1	2.53	1.49	6.0	4.0	4.0	4.67	2.74
D	4.5	(5)	4.9		4.80	2.82	2.7	3.0	3.8	3.17	1.86	5.0	4.0	4.0	4.33	2.55
E	4.5	4.8	4.7		4.67	2.74	3.3	3.0	3.2	3.17	1.86	5.5	4.5	4.5	4.83	2.84
Avg. Mils	4.30	4.44	4.46		4.40		2.76	2.70	3.36	2.94		5.20	4.10	4.20	4.50	
Avg.OZ/SF	2.53	2.61	2.62			2.59	1.62	1.59	1.98		1.73	3.06	2.41	2.47		2.65
23-3A	INF	INF	4.9		-	-	3.3	4.5	5.0	4.27	2.51	5.5	4.5	5.5	5.17	3.04
B	INF	INF	INF		-	-	3.4	4.0	4.3	3.90	2.29	6.0	5.0	4.5	5.17	3.04
C	INF	INF	INF		-	-	4.4	4.5	5.1	4.67	2.74	7.0	6.0	5.5	6.17	3.63
D	INF	INF	INF		-	-	3.4	4.5	4.3	4.07	2.39	7.0	5.5	6.0	6.17	3.63
E	INF	INF	INF		-	-	5.0	5.5	6.1	5.53	3.25	7.0	5.5	5.5	6.00	3.53
Avg. Mils	-	-	-		-		3.90	4.60	4.96	4.49		6.50	5.30	5.40	5.74	
Avg.OZ/SF	-	-	-			-	2.29	2.71	2.92		2.64	3.82	3.12	3.18		3.37
23-4A	4.2	4.1	4.2		4.17	2.45	3.0	2.3	3.8	3.03	1.78	5.0	4.5	4.5	4.67	2.74
B	4.2	4.4	4.3		4.30	2.53	2.9	3.0	3.8	3.23	1.90	4.5	4.0	4.0	4.17	2.45
C	4.1	4.6	4.3		4.33	2.55	3.3	3.0	3.7	3.33	1.96	5.5	5.0	4.5	5.00	2.94
D	4.3	4.3	4.4		4.33	2.55	2.7	3.0	4.2	3.30	1.94	5.5	4.0	4.0	4.50	2.65
E	4.1	4.4	4.0		4.17	2.45	2.3	3.0	2.5	2.60	1.53	5.0	4.0	3.5	4.17	2.45
Avg. Mils	4.18	4.36	4.24		4.26		2.84	2.86	3.60	3.10		5.10	4.30	4.10	4.50	
Avg.OZ/SF	2.46	2.56	2.49			2.51	1.67	1.68	2.12		1.82	3.00	2.53	2.41		2.65
23-5A	INF	INF	INF		INF	(3+)	3.8	3.5	4.6	3.97	2.33	5.0	5.0	5.0	5.00	2.94
B	4.8	4.8	4.8		4.80	2.82	4.3	3.5	3.7	3.83	2.25	5.5	4.5	5.0	5.00	2.94
C	4.2	4.8	4.4		4.47	2.63	3.0	3.3	3.1	3.13	1.84	5.0	4.5	4.5	4.67	2.74
D	INF	INF	INF		INF	(3+)	5.3	3.5	4.4	4.40	2.59	5.0	4.5	5.0	4.83	2.84
E	INF	INF	INF		INF	(3+)	5.6	4.0	5.7	5.10	3.00	5.5	5.5	5.5	5.50	3.24
Avg. Mils	(4.50)	(4.80)	(4.60)		(4.63)		4.40	3.56	4.30	4.09		5.20	4.80	5.00	5.00	
Avg.OZ/SF	(2.65)	(2.82)	(2.71)			(2.73)	2.59	2.09	2.53		2.40	3.06	2.82	2.94		2.94

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-1	OPTR C-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-2	OPTR I-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
24-1A	4.1	3.8	4.0		3.97	2.33	3.5	3.5	3.2	3.40	2.00	4.0	3.5	3.5	3.67	2.16
B	4.1	3.6	3.6		3.77	2.22	3.4	3.0	2.2	2.87	1.69	4.3	3.8	4.0	4.03	2.37
C	3.9	3.6	3.5		3.67	2.16	2.9	2.0	2.0	2.30	1.35	3.5	3.3	3.5	3.43	2.02
D	4.2	4.0	4.3		4.17	2.45	3.3	2.5	3.3	3.03	1.78	4.0	3.5	4.0	3.83	2.25
E	4.3	3.9	4.5		4.23	2.49	3.5	3.0	3.4	3.30	1.94	4.5	4.5	4.0	4.33	2.55
Avg. Mils	4.12	3.78	3.98		3.96		3.32	2.80	2.82	2.98		4.06	3.72	3.80	3.86	
Avg.OZ/SF	2.42	2.22	2.34			2.33	1.95	1.65	1.66		1.75	2.39	2.19	2.24		2.27
24-2A	INF	INF	INF		INF	(3+)	4.1	5.0	3.9	4.33	2.55	5.0	5.5	5.0	5.17	3.04
B	5.0	4.9	5.0		4.97	2.92	4.2	3.5	3.6	3.77	2.22	5.5	5.0	4.5	5.00	2.94
C	INF	4.5	4.8		(4.65)	(2.74)	4.1	3.5	3.4	3.67	2.16	5.0	4.5	5.0	4.83	2.84
D	4.5	4.5	4.4		4.47	2.63	3.4	3.5	2.5	3.13	1.84	4.0	4.5	4.0	4.17	2.45
E	INF	4.5	4.6		(4.55)	(2.68)	3.8	3.7	3.2	3.57	2.10	4.5	4.5	4.5	4.50	2.65
Avg. Mils	(4.75)	(4.60)	(4.70)		(4.68)		3.92	3.84	3.32	3.69		4.80	4.80	4.60	4.73	
Avg.OZ/SF	(2.79)	(2.71)	(2.76)			(2.75)	2.31	2.26	1.95		2.17	2.82	2.82	2.71		2.78
24-3A	INF	INF	INF		INF	(3+)	5.5	4.5	3.7	4.57	2.69	4.5	5.5	5.0	5.00	2.94
B	INF	INF	5.0		(5.00)	(2.94)	5.4	3.5	3.2	4.03	2.37	5.0	5.0	5.0	5.00	2.94
C	INF	INF	5.0		(5.00)	(2.94)	5.1	3.9	4.7	4.57	2.69	4.5	5.0	4.5	4.67	2.74
D	INF	INF	5.0		(5.00)	(2.94)	4.8	3.9	3.9	4.20	2.47	5.5	5.0	4.5	5.00	2.94
E	5.0	4.2	INF		(4.60)	(2.71)	4.8	3.9	3.3	4.00	2.35	5.0	5.0	4.5	4.83	2.84
Avg. Mils	(5.00)	(4.20)	(5.00)		(4.73)		5.12	3.94	3.76	4.27		4.90	5.10	4.70	4.90	
Avg.OZ/SF	(2.94)	(2.47)	(2.94)			(2.78)	3.01	2.32	2.21		2.51	2.88	3.00	2.76		2.88
24-4A	INF	INF	INF		INF	(3+)	5.1	4.0	5.2	4.77	2.80	5.0	6.0	5.0	5.33	3.14
B	4.5	4.2	4.8		4.50	2.65	4.5	3.5	2.9	3.63	2.14	4.5	4.3	4.0	4.27	2.51
C	INF	INF	INF		INF	(3+)	4.9	4.0	4.3	4.40	2.59	4.5	4.7	4.5	4.57	2.69
D	INF	INF	INF		INF	(3+)	5.3	3.0	4.2	4.17	2.45	5.0	4.5	5.0	4.83	2.84
E	INF	4.4	4.2		(4.30)	(2.53)	3.4	3.0	5.7	4.03	2.37	5.0	4.5	4.0	4.50	2.65
Avg. Mils	(4.50)	(4.30)	(4.50)		(4.43)		4.64	3.50	4.46	4.20		4.80	4.80	4.50	4.70	
Avg.OZ/SF	(2.65)	(2.53)	(2.65)			(2.61)	2.73	2.06	2.62		2.47	2.82	2.82	2.65		2.76

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-1	OPTR C-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-2	OPTR I-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
24-5A	4.2	3.5	4.2		3.97	2.33	3.8	3.0	3.2	3.33	1.96	3.5	4.0	4.0	3.83	2.25
B	4.6	4.8	4.1		4.50	2.65	3.8	4.0	3.2	3.67	2.16	4.0	4.0	4.0	4.00	2.35
C	4.0	3.7	4.2		3.97	2.33	2.9	2.5	3.3	2.90	1.71	4.0	4.0	3.5	3.83	2.25
D	4.2	3.7	3.7		3.87	2.27	3.7	2.5	3.2	3.13	1.84	4.0	4.0	4.0	4.00	2.35
E	3.9	3.5	3.8		3.73	2.20	2.7	2.5	2.4	2.53	1.49	3.5	3.5	3.5	3.50	2.06
Avg. Mils	4.18	3.84	4.00		4.01		3.38	2.90	3.06	3.11		3.80	3.90	3.80	3.83	
Avg.OZ/SF	2.46	2.26	2.35			2.36	1.99	1.71	1.80		1.83	2.24	2.29	2.24		2.25
25-1A	INF	INF	INF		INF	(3+)	2.6	4.0	4.4	3.67	2.16	4.0	4.5	3.5	4.00	2.35
B	INF	INF	INF		INF	(3+)	4.8	4.0	5.2	4.67	2.74	5.0	5.0	5.0	5.00	2.94
C	INF	INF	INF		INF	(3+)	5.2	4.2	6.1	5.17	3.04	6.0	5.5	5.5	5.67	3.33
D	INF	3.4	3.2		(3.30)	(1.94)	1.6	1.8	2.7	2.03	1.20	2.8	3.0	2.5	2.77	1.63
E	INF	3.0	3.0		(3.00)	(1.76)	2.0	2.0	3.2	2.40	1.41	3.0	3.0	3.0	3.00	1.76
Avg. Mils	INF	(3.20)	(3.10)		(3.15)		3.24	3.20	4.32	3.59		4.16	4.20	3.90	4.09	
Avg.OZ/SF	(3+)	(1.88)	(1.82)			(1.85)	1.91	1.88	2.54		2.11	2.45	2.47	2.29		2.40
25-2A	INF	INF	INF		INF	(3+)	4.5	4.0	5.4	4.63	2.73	4.5	5.5	4.5	4.83	2.84
B	INF	INF	INF		INF	(3+)	4.2	3.5	7.4	5.03	2.96	4.5	5.0	5.0	4.83	2.84
C	INF	INF	INF		INF	(3+)	5.2	5.0	5.8	5.33	3.14	6.0	5.0	5.0	5.33	3.14
D	4.0	3.2	3.2		3.47	2.04	1.8	2.0	3.7	2.50	1.47	3.0	3.0	3.0	3.00	1.76
E	3.4	3.0	3.1		3.17	1.86	2.0	2.0	3.7	2.57	1.51	3.0	3.0	3.0	3.00	1.76
Avg. Mils	(3.70)	(3.10)	(3.15)		(3.32)		3.54	3.30	5.20	4.01		4.20	4.30	4.10	4.20	
Avg.OZ/SF	(2.18)	(1.82)	(1.85)			(1.95)	2.08	1.94	3.06		2.36	2.47	2.53	2.41		2.47
25-3A	INF	5.0	5.0		(3.33)	(1.96)	5.0	5.0	5.4	5.13	3.02	5.0	5.0	4.0	4.67	2.74
B	INF	INF	INF		INF	(3+)	5.0	5.0	5.0	5.00	2.94	7.0	5.0	5.5	5.83	3.43
C	4.6	INF	INF		(4.60)	(2.71)	5.0	4.0	6.0	5.00	2.94	5.5	4.5	4.0	4.67	2.74
D	3.8	3.1	3.3		3.40	2.00	1.7	2.0	2.4	2.03	1.20	3.0	3.5	3.0	3.17	1.86
E	3.3	2.6	3.2		3.03	1.78	2.5	2.0	2.2	2.23	1.31	3.0	3.0	3.0	3.00	1.76
Avg. Mils	(3.90)	(3.57)	(3.83)		(3.77)		3.84	3.60	4.20	3.88		4.70	4.20	3.90	4.27	
Avg.OZ/SF	(2.29)	(2.10)	(2.25)			(2.21)	2.26	2.12	2.47		2.28	2.76	2.47	2.29		2.51

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-1	OPTR C-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-2	OPTR I-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
25-4A	5.0	4.9	INF		(4.95)	(2.91)	4.3	4.5	5.3	4.70	2.76	6.0	5.0	5.0	5.33	3.14
B	INF	INF	INF		INF	(3+)	2.1	3.0	5.0	3.37	1.98	5.0	4.5	3.0	4.17	2.45
C	INF	INF	INF		INF	(3+)	4.8	4.6	4.8	4.73	2.78	4.5	5.0	4.0	4.50	2.65
D	4.4	3.3	3.2		3.63	2.14	2.5	4.0	4.3	3.60	2.12	3.5	3.5	3.0	3.33	1.96
E	3.0	2.6	3.4		3.00	1.76	2.0	3.0	4.2	3.07	1.80	3.0	3.5	3.0	3.17	1.86
Avg. Mils	(4.13)	(3.60)	(3.30)		(3.68)		3.14	3.82	4.72	3.89		4.40	4.30	3.60	4.10	
Avg.OZ/SF	(2.43)	(2.12)	(1.94)			(2.16)	1.85	2.25	2.78		2.29	2.59	2.53	2.12		2.41
25-5A	INF	INF	INF		INF	(3+)	7.0	4.5	7.2	6.23	3.67	6.0	6.0	5.5	5.83	3.43
B	INF	INF	INF		INF	(3+)	4.8	4.0	5.4	4.73	2.78	5.5	4.0	4.0	4.50	2.65
C	3.5	3.4	3.1		3.33	1.96	1.7	3.0	3.7	2.80	1.65	3.0	3.0	2.0	2.67	1.57
D	3.8	3.3	3.4		3.50	2.06	3.0	2.8	3.8	3.20	1.88	3.0	3.5	3.5	3.33	1.96
E	3.6	3.8	3.3		3.57	2.10	2.8	2.5	4.0	3.10	1.82	3.5	3.5	3.5	3.50	2.06
Avg. Mils	(3.63)	(3.50)	(3.27)		(3.47)		3.86	3.36	4.82	4.01		4.20	4.00	3.70	3.97	
Avg.OZ/SF	(2.14)	(2.06)	(1.92)			(2.04)	2.27	1.98	2.84		2.36	2.47	2.35	2.18		2.33
26-1A	4.6	5.0	4.1		4.57	2.69	5.4	3.0	5.8	4.73	2.78	4.5	4.5	4.5	4.50	2.65
B	5.0	INF	INF		(5.00)	(2.94)	4.0	2.0	5.7	3.90	2.29	4.5	4.0	4.0	4.17	2.45
C	4.9	INF	4.8		(4.85)	(2.85)	5.7	2.0	3.7	3.80	2.24	5.0	4.0	3.0	4.00	2.35
D	4.2	4.2	4.6		4.33	2.55	3.7	3.0	3.7	3.47	2.04	4.0	3.5	3.5	3.67	2.16
E	4.8	4.8	4.8		4.80	2.82	5.2	3.0	4.0	4.07	2.39	5.0	4.0	4.0	4.33	2.55
Avg. Mils	4.70	(4.67)	(4.58)		(4.65)		4.80	2.60	4.58	3.99		4.60	4.00	3.80	4.13	
Avg.OZ/SF	2.76	(2.74)	(2.69)			(2.73)	2.82	1.53	2.69		2.35	2.71	2.35	2.24		2.43
26-2A	4.0	3.9	4.4		4.10	2.41	3.6	2.0	4.9	3.50	2.06	4.0	3.5	3.5	3.67	2.16
B	4.2	4.2	4.2		4.20	2.47	3.5	3.0	2.9	3.13	1.84	5.0	3.5	3.5	4.00	2.35
C	4.4	4.0	4.1		4.17	2.45	3.4	2.0	3.4	2.93	1.73	4.5	3.5	3.5	3.83	2.25
D	4.4	4.2	4.4		4.33	2.55	4.1	2.0	3.8	3.30	1.94	5.0	3.5	3.5	4.00	2.35
E	4.2	INF	4.6		(4.40)	(2.59)	3.2	2.5	4.8	3.50	2.06	5.0	4.0	4.0	4.33	2.55
Avg. Mils	4.24	(4.08)	4.34		(4.22)		3.56	2.30	3.96	3.27		4.70	3.60	3.60	3.97	
Avg.OZ/SF	2.49	(2.40)	2.55			(2.48)	2.09	1.35	2.33		1.92	2.76	2.12	2.12		2.33

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-1	OPTR C-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-2	OPTR I-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
26-3A	4.0	4.1	4.5		4.20	2.47	3.5	2.0	3.4	2.97	1.74	4.0	3.5	3.5	3.67	2.16
B	4.6	4.5	INF		(4.55)	(2.68)	4.5	2.0	3.5	3.33	1.96	4.0	3.5	3.5	3.67	2.16
C	4.2	4.2	INF		(4.20)	(2.47)	3.4	2.0	3.2	2.87	1.69	4.5	3.5	4.0	4.00	2.35
D	4.2	4.2	4.2		4.20	2.47	2.8	2.0	4.2	3.00	1.76	5.0	4.0	3.5	4.17	2.45
E	4.5	5.0	INF		(4.75)	(2.79)	3.8	2.0	3.7	3.17	1.86	5.0	4.0	4.0	4.33	2.55
Avg. Mils	4.30	4.40	(4.35)		(4.35)		3.60	2.00	3.60	3.07		4.50	3.70	3.70	3.97	
Avg.OZ/SF	2.53	2.59	(2.56)			(2.56)	2.12	1.18	2.12		1.80	2.65	2.18	2.18		2.33
26-4A	4.6	INF	INF		(4.60)	(2.71)	5.0	2.5	4.7	4.07	2.39	5.0	4.5	4.0	4.50	2.65
B	4.8	INF	INF		(4.80)	(2.82)	4.8	2.0	3.8	3.53	2.08	4.5	4.5	3.5	4.17	2.45
C	INF	INF	INF		INF	(3+)	4.5	2.5	4.9	3.97	2.33	5.0	5.0	4.0	4.67	2.74
D	4.6	5.0	INF		(4.80)	(2.82)	4.0	2.5	4.6	3.70	2.18	4.5	5.0	4.5	4.67	2.74
E	4.8	INF	INF		(4.80)	(2.82)	4.3	3.0	4.1	3.80	2.24	5.0	4.5	3.5	4.33	2.55
Avg. Mils	(4.70)	(5.00)	INF		(4.85)		4.52	2.50	4.42	3.81		4.80	4.70	3.90	4.47	
Avg.OZ/SF	(2.76)	(2.94)	(3+)			(2.85)	2.66	1.47	2.60		2.24	2.82	2.76	2.29		2.63
26-5A	5.0	INF	4.2		(4.60)	(2.71)	5.2	3.0	4.1	4.10	2.41	4.5	3.5	3.5	3.83	2.25
B	INF	INF	INF		INF	(3+)	4.5	3.0	4.9	4.13	2.43	5.5	5.5	4.0	5.00	2.94
C	INF	INF	INF		INF	(3+)	4.5	3.0	3.9	3.80	2.24	5.0	4.0	4.0	4.33	2.55
D	4.4	INF	4.8		(4.60)	(2.71)	4.3	3.0	4.2	3.83	2.25	5.0	4.5	4.0	4.50	2.65
E	4.3	4.5	4.6		(4.47)	(2.63)	3.2	2.5	4.2	3.30	1.94	4.0	4.0	3.5	3.83	2.25
Avg. Mils	(4.57)	(4.50)	(4.53)		(4.53)		4.34	2.90	4.26	3.83		4.80	4.30	3.80	4.30	
Avg.OZ/SF	(2.69)	(2.65)	(2.67)			(2.67)	2.55	1.71	2.51		2.25	2.82	2.53	2.24		2.53

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-4	OPTR I-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF
36-1A	3.4	3.9	3.4		3.57	2.10	1.3	0.6	0.6	0.83	0.49	3.5	3.5	3.5	3.50	2.06
FLANGE B	3.0	3.8	2.9		3.23	1.90	1.3	0.7	0.9	0.97	0.57	3.5	3.5	3.5	3.50	2.06
FLANGE C	3.6	3.9	3.5		3.67	2.16	2.3	1.2	0.8	1.43	0.84	3.5	4.0	3.5	3.67	2.16
FLANGE D	3.5	4.0	4.0		3.83	2.25	1.5	0.7	0.1	0.77	0.45	3.5	3.5	3.5	3.50	2.06
FLANGE E	3.0	3.8	2.9		3.23	1.90	1.8	0.2	0.1	0.70	0.41	3.0	3.0	3.3	3.10	1.82
Avg. Mils	3.30	3.88	3.34		3.51		1.64	0.68	0.50	0.94		3.40	3.50	3.46	3.45	
Avg.OZ/SF	1.94	2.28	1.96			2.06	0.96	0.40	0.29		0.55	2.00	2.06	2.04		2.03
36-1A	2.4	3.4	2.8		2.87	1.69	2.7	1.4	1.3	1.80	1.06	4.0	4.0	4.0	4.00	2.35
WEB B	2.6	3.6	3.7		3.30	1.94	2.0	2.0	2.5	2.17	1.27	4.0	4.0	4.5	4.17	2.45
WEB C	3.4	4.0	3.3		3.57	2.10	3.5	1.7	1.8	2.33	1.37	4.5	4.5	4.0	4.33	2.55
WEB D	3.2	4.0	3.0		3.40	2.00	2.5	2.1	2.0	2.20	1.29	4.0	4.5	4.5	4.33	2.55
WEB E	2.4	3.8	3.3		3.17	1.86	1.7	1.9	2.0	1.87	1.10	4.5	4.5	4.0	4.33	2.55
Avg. Mils	2.80	3.76	3.22		3.26		2.48	1.82	1.92	2.07		4.20	4.30	4.20	4.23	
Avg.OZ/SF	1.65	2.21	1.89			1.92	1.46	1.07	1.13		1.22	2.47	2.53	2.47		2.49
36-2A	3.2	3.4	3.2		3.27	1.92	1.4	0.7	0.5	0.87	0.51	3.5	3.5	3.8	3.60	2.12
FLANGE B	3.2	3.8	3.0		3.33	1.96	0.8	0.2	0.5	0.50	0.29	3.2	3.5	3.5	3.40	2.00
FLANGE C	3.4	4.0	3.1		3.50	2.06	1.5	1.2	1.0	1.23	0.73	3.5	4.0	4.0	3.83	2.25
FLANGE D	3.5	4.2	3.7		3.80	2.24	1.4	1.0	1.0	1.13	0.67	3.5	4.0	3.8	3.77	2.22
FLANGE E	3.6	4.0	3.3		3.63	2.14	1.3	1.0	1.8	1.37	0.80	3.3	4.0	4.0	3.77	2.22
Avg. Mils	3.38	3.88	3.26		3.51		1.28	0.82	0.96	1.02		3.40	3.80	3.82	3.67	
Avg.OZ/SF	1.99	2.28	1.92			2.06	0.75	0.48	0.56		0.60	2.00	2.24	2.25		2.16
36-2A	2.6	3.2	2.8		2.87	1.69	3.3	1.3	0.8	1.80	1.06	3.5	4.0	4.3	3.93	2.31
WEB B	3.5	3.6	3.4		3.50	2.06	3.0	3.4	1.8	2.73	1.61	3.8	3.5	4.0	3.77	2.22
WEB C	3.4	3.8	3.3		3.50	2.06	3.1	1.5	1.0	1.87	1.10	3.5	4.0	3.8	3.77	2.22
WEB D	NR	3.8	2.7		(3.25)	(1.91)	2.7	1.5	1.1	1.77	1.04	4.0	4.0	3.8	3.93	2.31
WEB E	2.8	4.0	2.5		3.10	1.82	2.3	0.3	0.1	0.90	0.53	3.5	4.0	3.3	3.60	2.12
Avg. Mils	(3.08)	3.68	2.94		(3.23)		2.88	1.60	0.96	1.81		3.66	3.90	3.84	3.80	
Avg.OZ/SF	(1.81)	2.16	1.73			(1.90)	1.69	0.94	0.56		1.07	2.15	2.29	2.26		2.24

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-4	OPTR I-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF
36-3A	3.3	3.9	3.5		3.57	2.10	1.9	0.8	0.8	1.17	0.69	3.5	4.5	4.0	4.00	2.35
FLANGE B	3.4	3.8	3.1		3.43	2.02	0.8	1.3	0.6	0.90	0.53	3.4	4.0	3.5	3.63	2.14
FLANGE C	3.1	3.6	2.8		3.17	1.86	1.3	0.9	1.0	1.07	0.63	3.5	4.0	4.0	3.83	2.25
FLANGE D	3.5	4.1	3.3		3.63	2.14	1.8	3.2	1.0	2.00	1.18	3.5	4.0	3.8	3.77	2.22
FLANGE E	3.4	4.0	2.9		3.43	2.02	2.0	3.2	1.0	2.07	1.22	3.5	4.0	3.8	3.77	2.22
Avg. Mils	3.34	3.88	3.12		3.45		1.56	1.88	0.88	1.44		3.48	4.10	3.82	3.80	
Avg.OZ/SF	1.96	2.28	1.84			2.03	0.92	1.11	0.52		0.85	2.05	2.41	2.25		2.24
36-3A	3.2	3.8	3.5		3.50	2.06	3.0	4.0	3.0	3.33	1.96	4.5	5.0	5.5	5.00	2.94
WEB B	3.4	3.6	3.1		3.37	1.98	3.1	4.2	3.0	3.43	2.02	4.5	4.5	5.0	4.67	2.74
WEB C	3.8	4.4	3.6		3.93	2.31	2.7	1.5	1.8	2.00	1.18	4.5	4.5	4.6	4.53	2.67
WEB D	3.8	INF	3.6		(3.70)	(2.18)	3.3	1.5	1.6	2.13	1.25	4.5	4.0	4.3	4.27	2.51
WEB E	3.5	4.2	3.5		3.73	2.20	2.7	0.9	1.0	1.53	0.90	3.5	4.0	3.8	3.77	2.22
Avg. Mils	3.54	(4.00)	3.46		(3.67)		2.96	2.42	2.08	2.48		4.30	4.40	4.64	4.45	
Avg.OZ/SF	2.08	(2.35)	2.04			(2.16)	1.74	1.42	1.22		1.46	2.53	2.59	2.73		2.62
36-4A	3.1	3.6	2.9		3.20	1.88	1.4	1.5	0.1	1.00	0.59	3.5	3.5	3.5	3.50	2.06
FLANGE B	3.1	3.4	3.1		3.20	1.88	1.8	2.2	0.5	1.50	0.88	3.5	3.5	3.8	3.60	2.12
FLANGE C	3.1	3.8	2.9		3.27	1.92	2.1	3.0	0.7	1.93	1.14	3.5	3.5	3.8	3.60	2.12
FLANGE D	3.3	3.8	2.7		3.27	1.92	2.1	3.2	1.0	2.10	1.24	3.5	4.0	3.8	3.77	2.22
FLANGE E	3.6	4.8	3.4		3.93	2.31	2.1	3.3	1.0	2.13	1.25	3.5	4.0	4.0	3.83	2.25
Avg. Mils	3.24	3.88	3.00		3.37		1.90	2.64	0.66	1.73		3.50	3.70	3.78	3.66	
Avg.OZ/SF	1.91	2.28	1.76			1.98	1.12	1.55	0.39		1.02	2.06	2.18	2.22		2.15
36-4A	3.6	4.0	3.0		3.53	2.08	2.0	2.2	1.5	1.90	1.12	3.5	4.0	4.0	3.83	2.25
WEB B	3.2	3.6	2.9		3.23	1.90	1.6	2.0	1.5	1.70	1.00	3.5	4.0	3.8	3.77	2.22
WEB C	3.8	4.2	3.7		3.90	2.29	1.4	2.2	2.0	1.87	1.10	3.5	4.0	4.0	3.83	2.25
WEB D	3.6	4.0	3.5		3.70	2.18	1.5	2.2	1.0	1.57	0.92	4.0	4.0	4.0	4.00	2.35
WEB E	2.8	3.4	2.5		2.90	1.71	1.9	2.5	0.5	1.63	0.96	3.5	3.5	3.5	3.50	2.06
Avg. Mils	3.40	3.84	3.12		3.45		1.68	2.22	1.30	1.73		3.60	3.90	3.86	3.79	
Avg.OZ/SF	2.00	2.26	1.84			2.03	0.99	1.31	0.76		1.02	2.12	2.29	2.27		2.23

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-4	OPTR I-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF
36-5A	3.2	3.8	2.8		3.27	1.92	2.3	2.2	0.7	1.73	1.02	3.5	3.5	4.0	3.67	2.16
FLANGE B	3.3	3.6	3.0		3.30	1.94	2.4	3.2	1.0	2.20	1.29	3.5	3.5	4.3	3.77	2.22
FLANGE C	3.4	4.0	3.4		3.60	2.12	2.4	2.9	1.0	2.10	1.24	3.5	4.0	4.5	4.00	2.35
FLANGE D	3.2	3.8	3.3		3.43	2.02	1.8	2.3	1.0	1.70	1.00	3.5	4.0	4.0	3.83	2.25
FLANGE E	3.5	4.2	3.3		3.67	2.16	1.9	2.2	1.3	1.80	1.06	3.5	4.5	4.0	4.00	2.35
Avg. Mils	3.32	3.88	3.16		3.45		2.16	2.56	1.00	1.91		3.50	3.90	4.16	3.85	
Avg.OZ/SF	1.95	2.28	1.86			2.03	1.27	1.51	0.59		1.12	2.06	2.29	2.45		2.27
36-5A	3.0	3.4	2.7		3.03	1.78	2.2	1.7	1.5	1.80	1.06	3.3	4.0	3.8	3.70	2.18
WEB B	3.0	3.4	2.7		3.03	1.78	1.7	0.9	0.5	1.03	0.61	3.5	3.5	3.5	3.50	2.06
WEB C	3.0	3.6	2.9		3.17	1.86	2.7	1.2	0.5	1.47	0.86	3.5	4.0	3.5	3.67	2.16
WEB D	3.1	3.2	2.9		3.07	1.80	3.0	1.9	0.8	1.90	1.12	3.5	4.0	4.0	3.80	2.24
WEB E	3.6	3.6	3.2		3.47	2.04	2.9	0.7	0.4	1.33	0.78	3.5	4.0	3.3	3.60	2.12
Avg. Mils	3.14	3.44	2.88		3.15		2.50	1.28	0.74	1.51		3.46	3.90	3.62	3.66	
Avg.OZ/SF	1.85	2.02	1.69			1.85	1.47	0.75	0.44		0.89	2.04	2.29	2.13		2.15
37-1A	3.6	3.2	3.1		3.30	1.94	2.3	2.2	1.1	1.87	1.10	3.5	4.0	4.0	3.83	2.25
FLANGE B	3.5	3.4	3.2		3.37	1.98	2.0	1.6	1.0	1.53	0.90	3.2	3.5	3.5	3.40	2.00
FLANGE C	3.5	4.0	3.5		3.67	2.16	1.9	1.8	2.1	1.93	1.14	3.6	4.0	3.5	3.70	2.18
FLANGE D	3.8	4.2	3.3		3.77	2.22	1.7	2.2	1.5	1.80	1.06	3.2	4.0	4.0	3.73	2.20
FLANGE E	3.5	3.4	2.9		3.27	1.92	3.6	3.4	2.0	3.00	1.76	3.5	4.5	4.0	4.00	2.35
Avg. Mils	3.58	3.64	3.20		3.47		2.30	2.24	1.54	2.03		3.40	4.00	3.80	3.73	
Avg.OZ/SF	2.11	2.14	1.88			2.04	1.35	1.32	0.91		1.19	2.00	2.35	2.24		2.20
37-1A	3.4	3.2	3.0		3.20	1.88	3.2	3.5	3.2	3.30	1.94	3.3	3.5	4.0	3.60	2.12
WEB B	3.0	3.0	2.9		2.97	1.74	3.6	2.2	2.5	2.77	1.63	3.2	3.0	3.8	3.33	1.96
WEB C	3.7	3.4	3.5		3.53	2.08	3.6	2.7	2.5	2.93	1.73	3.5	3.5	3.8	3.60	2.12
WEB D	3.4	3.2	3.6		3.40	2.00	3.5	3.3	3.0	3.27	1.92	3.3	3.5	3.8	3.53	2.08
WEB E	3.4	3.4	3.0		3.27	1.92	2.9	3.5	2.2	2.87	1.69	3.5	3.5	4.0	3.67	2.16
Avg. Mils	3.38	3.24	3.20		3.27		3.36	3.04	2.68	3.03		3.36	3.40	3.88	3.55	
Avg.OZ/SF	1.99	1.91	1.88			1.93	1.98	1.79	1.58		1.78	1.98	2.00	2.28		2.09

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-4	OPTR I-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF
37-2A	3.0	3.2	2.5		2.90	1.71	3.0	2.1	1.0	2.03	1.20	3.0	4.0	3.3	3.43	2.02
FLANGE B	3.6	3.6	2.9		3.37	1.98	2.3	2.1	1.4	1.93	1.14	3.6	3.0	3.2	3.27	1.92
FLANGE C	3.4	3.8	3.2		3.47	2.04	1.8	3.0	1.1	1.97	1.16	3.3	3.5	3.0	3.27	1.92
FLANGE D	3.3	3.2	2.8		3.10	1.82	1.7	2.1	1.0	1.60	0.94	3.5	3.0	3.0	3.17	1.86
FLANGE E	3.6	3.2	3.0		3.27	1.92	2.3	2.8	2.1	2.40	1.41	3.5	4.0	3.5	3.67	2.16
Avg. Mils	3.38	3.40	2.88		3.22		2.22	2.42	1.32	1.99		3.38	3.50	3.20	3.36	
Avg.OZ/SF	1.99	2.00	1.69			1.89	1.31	1.42	0.78		1.17	1.99	2.06	1.88		1.98
37-2A	3.0	3.2	2.5		2.90	1.71	3.0	1.2	2.4	2.20	1.29	3.5	3.0	3.0	3.17	1.86
WEB B	2.9	2.6	2.5		2.67	1.57	2.6	2.0	1.8	2.13	1.25	3.0	3.0	3.0	3.00	1.76
WEB C	2.9	2.6	2.5		2.67	1.57	1.8	1.1	1.8	1.57	0.92	3.0	3.0	3.0	3.00	1.76
WEB D	2.6	2.8	2.5		2.63	1.55	1.7	2.0	2.2	1.97	1.16	3.0	3.0	2.8	2.93	1.73
WEB E	3.0	3.0	2.7		2.90	1.71	1.8	1.1	1.8	1.57	0.92	3.0	3.0	3.0	3.00	1.76
Avg. Mils	2.88	2.84	2.54		2.75		2.18	1.48	2.00	1.89		3.10	3.00	2.96	3.02	
Avg.OZ/SF	1.69	1.67	1.49			1.62	1.28	0.87	1.18		1.11	1.82	1.76	1.74		1.77
37-3A	3.5	3.8	2.8		3.37	1.98	2.0	1.8	0.8	1.53	0.90	3.3	3.5	3.0	3.27	1.92
FLANGE B	3.3	4.0	2.9		3.40	2.00	2.5	2.8	1.6	2.30	1.35	4.0	4.0	3.5	3.83	2.25
FLANGE C	3.6	3.6	3.4		3.53	2.08	2.6	2.4	1.5	2.17	1.27	3.3	3.5	4.0	3.60	2.12
FLANGE D	3.6	3.6	2.9		3.37	1.98	1.4	1.7	0.9	1.33	0.78	3.5	4.0	3.0	3.50	2.06
FLANGE E	3.1	3.4	3.2		3.23	1.90	1.3	2.8	1.1	1.73	1.02	3.5	3.5	3.5	3.50	2.06
Avg. Mils	3.42	3.68	3.04		3.38		1.96	2.30	1.18	1.81		3.52	3.70	3.40	3.54	
Avg.OZ/SF	2.01	2.16	1.79			1.99	1.15	1.35	0.69		1.06	2.07	2.18	2.00		2.08
37-3A	3.0	3.0	3.0		3.00	1.76	3.0	1.3	1.9	2.07	1.22	3.3	3.5	3.0	3.27	1.92
WEB B	3.0	2.8	2.6		2.80	1.65	2.1	1.2	1.8	1.70	1.00	3.5	3.0	3.0	3.17	1.86
WEB C	3.5	4.6	2.9		3.67	2.16	2.3	1.4	2.4	2.03	1.20	4.0	3.5	2.8	3.43	2.02
WEB D	3.5	4.0	3.1		3.53	2.08	2.8	3.6	3.0	3.13	1.84	4.5	4.0	3.5	4.00	2.35
WEB E	2.8	3.0	2.7		2.83	1.67	2.0	1.8	2.0	1.93	1.14	3.5	3.0	3.3	3.27	1.92
Avg. Mils	3.16	3.48	2.86		3.17		2.44	1.86	2.22	2.17		3.76	3.40	3.12	3.43	
Avg.OZ/SF	1.86	2.05	1.68			1.86	1.44	1.09	1.31		1.28	2.21	2.00	1.84		2.02

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-4	OPTR I-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF
37-4A	3.6	3.8	3.6		3.67	2.16	2.5	2.7	1.6	2.27	1.33	3.5	3.5	4.0	3.67	2.16
B	3.1	3.6	3.3		3.33	1.96	1.5	2.4	1.5	1.80	1.06	4.0	3.5	3.5	3.67	2.16
FLANGE C	3.7	4.0	3.0		3.37	1.98	2.6	3.1	3.1	2.93	1.73	4.0	4.5	3.8	4.10	2.41
D	3.6	4.0	3.3		3.63	2.14	2.5	2.3	1.9	2.23	1.31	3.5	3.5	3.7	3.57	2.10
E	3.4	4.0	3.3		3.57	2.10	3.1	3.0	2.1	2.73	1.61	3.5	3.5	4.0	3.67	2.16
Avg. Mils	3.48	3.88	3.30		3.55		2.44	2.70	2.04	2.39		3.70	3.70	3.80	3.73	
Avg.OZ/SF	2.05	2.28	1.94			2.09	1.44	1.59	1.20		1.41	2.18	2.18	2.24		2.20
37-4A	3.0	3.6	2.9		3.17	1.86	3.4	2.1	3.0	2.83	1.67	4.0	3.5	3.5	3.67	2.16
B	3.3	3.4	3.7		3.47	2.04	3.0	2.6	2.4	2.67	1.57	4.0	4.0	3.5	3.83	2.25
WEB C	3.3	3.2	3.0		3.17	1.86	3.1	1.9	2.5	2.50	1.47	3.0	3.5	3.3	3.27	1.92
D	3.9	INF	3.1		(3.50)	(2.06)	2.8	3.2	2.7	2.90	1.71	3.5	4.0	3.5	3.67	2.16
E	3.2	3.8	2.9		3.30	1.94	2.2	2.8	1.9	2.30	1.35	3.8	3.5	3.3	3.53	2.08
Avg. Mils	3.34	(3.50)	3.12		3.32		2.90	2.52	2.50	2.64		3.66	3.70	3.42	3.59	
Avg.OZ/SF	1.96	(2.06)	1.84			1.95	1.71	1.48	1.47		1.55	2.15	2.18	2.01		2.11
37-5A	3.7	3.8	3.3		3.60	2.12	2.0	3.0	1.8	2.27	1.33	3.5	4.0	3.3	3.60	2.12
B	3.6	3.6	3.1		3.43	2.02	1.7	3.5	1.5	2.23	1.31	4.0	4.0	4.0	4.00	2.35
FLANGE C	3.6	4.0	3.2		3.60	2.12	2.0	3.2	2.1	2.43	1.43	4.0	4.0	3.8	3.93	2.31
D	3.6	3.8	3.3		3.57	2.10	2.5	3.0	2.1	2.53	1.49	4.5	4.0	4.0	4.17	2.45
E	3.6	4.2	3.3		3.70	2.18	2.2	2.8	1.0	2.00	1.18	4.0	4.0	3.8	3.93	2.31
Avg. Mils	3.62	3.88	3.24		3.58		2.08	3.10	1.70	2.29		4.00	4.00	3.78	3.93	
Avg.OZ/SF	2.13	2.28	1.91			2.11	1.22	1.82	1.00		1.35	2.35	2.35	2.22		2.31
37-5A	3.6	3.4	3.7		3.57	2.10	3.5	2.0	3.5	3.00	1.76	4.5	4.0	3.8	4.10	2.41
B	3.4	3.4	2.9		3.23	1.90	2.6	1.3	2.0	1.97	1.16	4.5	3.5	3.3	3.77	2.22
WEB C	3.3	3.6	3.3		3.40	2.00	3.0	1.6	3.0	2.53	1.49	3.5	3.5	3.0	3.33	1.96
D	3.0	3.2	3.1		3.10	1.82	1.8	1.2	1.9	1.63	0.96	3.5	3.0	3.3	3.27	1.92
E	2.8	3.6	3.1		3.17	1.86	2.0	2.1	2.5	2.20	1.29	4.0	3.0	3.0	3.33	1.96
Avg. Mils	3.22	3.44	3.22		3.29		2.58	1.64	2.58	2.27		4.00	3.40	3.28	3.56	
Avg.OZ/SF	1.89	2.02	1.89			1.93	1.52	0.96	1.52		1.33	2.35	2.00	1.93		2.09

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-4	OPTR I-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF
38-1A	4.1	3.2	3.9		3.73	2.20	1.9	3.1	4.1	3.03	1.78	4.5	4.5	4.0	4.33	2.55
B	4.0	3.4	4.2		3.87	2.27	1.7	2.7	3.0	2.47	1.45	5.0	4.0	4.0	4.33	2.55
FLANGE C	4.3	4.0	3.9		4.07	2.39	3.2	4.5	5.0	4.23	2.49	4.5	4.0	4.0	4.17	2.45
D	4.0	4.2	4.9		4.37	2.57	1.7	2.8	3.9	2.80	1.65	4.0	4.0	4.0	4.00	2.35
E	3.5	3.4	3.1		3.33	1.96	2.0	1.3	3.2	2.17	1.27	4.5	3.5	3.5	3.83	2.25
Avg. Mils	3.98	3.64	4.00		3.87		2.10	2.88	3.84	2.94		4.50	4.00	3.90	4.13	
Avg.OZ/SF	2.34	2.14	2.35			2.28	1.24	1.69	2.26		1.73	2.65	2.35	2.29		2.43
38-1A	3.7	3.6	4.0		3.77	2.22	2.6	2.5	4.1	3.07	1.80	4.5	4.0	4.0	4.17	2.45
B	3.7	3.6	3.5		3.60	2.12	2.5	3.2	3.2	2.97	1.74	4.0	4.0	3.8	3.93	2.31
WEB C	3.8	3.2	3.5		3.50	2.06	2.0	2.4	2.7	2.37	1.39	4.0	3.5	3.3	3.60	2.12
D	3.4	3.8	3.4		3.53	2.08	1.5	2.6	2.1	2.07	1.22	4.0	3.5	3.5	3.67	2.16
E	3.4	3.6	3.3		3.43	2.02	1.7	1.7	2.0	1.80	1.06	3.5	3.0	3.0	3.17	1.86
Avg. Mils	3.60	3.56	3.54		3.57		2.06	2.48	2.82	2.45		4.00	3.60	3.52	3.71	
Avg.OZ/SF	2.12	2.09	2.08			2.10	1.21	1.46	1.66		1.44	2.35	2.12	2.07		2.18
38-2A	3.5	3.8	3.4		3.57	2.10	1.7	2.1	3.4	2.40	1.41	4.0	4.5	3.5	4.00	2.35
B	3.6	4.0	3.3		3.63	2.14	2.2	2.8	2.6	2.53	1.49	4.5	4.5	3.5	4.17	2.45
FLANGE C	3.5	4.0	3.2		3.57	2.10	1.7	2.2	2.9	2.27	1.33	4.0	4.5	4.0	4.17	2.45
D	3.3	3.4	3.2		3.30	1.94	1.4	1.5	2.4	1.77	1.04	4.5	3.5	3.5	3.83	2.25
E	3.6	3.8	3.5		3.63	2.14	1.0	1.9	2.6	1.83	1.08	4.0	3.5	3.3	3.60	2.12
Avg. Mils	3.50	3.80	3.32		3.54		1.60	2.10	2.78	2.16		4.20	4.10	3.56	3.95	
Avg.OZ/SF	2.06	2.24	1.95			2.08	0.94	1.24	1.64		1.27	2.47	2.41	2.09		2.32
38-2A	3.4	3.2	3.3		3.30	1.94	1.8	2.4	3.0	2.40	1.41	3.5	3.5	3.5	3.50	2.06
B	3.4	3.4	3.4		3.40	2.00	2.0	2.3	2.6	2.30	1.35	3.3	3.0	3.0	3.10	1.82
WEB C	3.4	3.2	3.6		3.40	2.00	2.3	2.6	1.9	2.27	1.33	3.5	3.5	3.0	3.33	1.96
D	3.1	3.4	3.0		3.17	1.86	1.8	2.0	2.5	2.10	1.24	3.5	3.5	3.0	3.33	1.96
E	3.5	3.4	3.7		3.53	2.08	1.9	2.2	2.2	2.10	1.24	3.5	3.5	3.5	3.50	2.06
Avg. Mils	3.36	3.32	3.40		3.36		1.96	2.30	2.44	2.23		3.46	3.40	3.20	3.35	
Avg.OZ/SF	1.98	1.95	2.00			1.98	1.15	1.35	1.44		1.31	2.04	2.00	1.88		1.97

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-4	OPTR I-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF
38-3A	3.9	4.0	4.0		3.97	2.33	1.7	3.6	3.3	2.87	1.69	4.0	4.0	4.0	4.00	2.35
FLANGE B	3.8	3.8	3.0		3.53	2.08	1.4	2.1	3.1	2.20	1.29	4.0	4.0	4.0	4.00	2.35
FLANGE C	4.1	4.4	3.7		4.07	2.39	3.2	2.8	3.0	3.00	1.76	4.0	4.0	4.0	4.00	2.35
FLANGE D	3.6	3.8	3.9		3.77	2.22	1.0	2.7	3.4	2.37	1.39	4.0	3.0	3.5	3.50	2.06
FLANGE E	3.5	4.0	3.5		3.67	2.16	1.2	2.1	4.0	2.43	1.43	4.0	4.0	4.0	4.00	2.35
Avg. Mils	3.78	4.00	3.62		3.80		1.70	2.66	3.36	2.57		4.00	3.80	3.90	3.90	
Avg.OZ/SF	2.22	2.35	2.13			2.24	1.00	1.56	1.98		1.51	2.35	2.24	2.29		2.29
38-3A	3.4	3.4	3.0		3.27	1.92	3.8	1.5	2.7	2.67	1.57	3.5	4.0	3.0	3.50	2.06
WEB B	3.7	3.2	3.6		3.50	2.06	3.8	3.1	2.3	3.07	1.80	3.5	4.0	3.5	3.67	2.16
WEB C	3.7	3.2	3.5		3.47	2.04	2.8	2.5	2.6	2.63	1.55	3.5	3.5	3.0	3.33	1.96
WEB D	3.6	3.2	3.2		3.33	1.96	2.2	2.0	3.1	2.43	1.43	3.0	3.5	3.0	3.17	1.86
WEB E	3.4	3.4	3.0		3.27	1.92	3.3	2.2	2.9	2.80	1.65	4.0	3.5	3.5	3.67	2.16
Avg. Mils	3.56	3.28	3.26		3.37		3.18	2.26	2.72	2.72		3.50	3.70	3.20	3.47	
Avg.OZ/SF	2.09	1.93	1.92			1.98	1.87	1.33	1.60		1.60	2.06	2.18	1.88		2.04
38-4A	4.0	4.6	4.0		4.20	2.47	3.2	3.2	3.8	3.40	2.00	3.5	4.0	3.5	3.67	2.16
FLANGE B	4.2	4.6	4.3		4.37	2.57	2.9	2.2	2.8	2.63	1.55	4.5	4.0	3.5	4.00	2.35
FLANGE C	3.4	3.8	3.0		3.40	2.00	1.9	2.3	2.6	2.27	1.33	4.0	4.5	3.8	4.10	2.41
FLANGE D	3.6	3.8	3.4		3.60	2.12	2.4	1.1	2.8	2.10	1.24	3.5	3.0	3.3	3.27	1.92
FLANGE E	4.0	3.6	3.3		3.63	2.14	2.4	2.1	2.4	2.30	1.35	3.5	3.5	3.3	3.43	2.02
Avg. Mils	3.84	4.08	3.60		3.84		2.56	2.18	2.88	2.54		3.80	3.80	3.48	3.69	
Avg.OZ/SF	2.26	2.40	2.12			2.26	1.51	1.28	1.69		1.49	2.24	2.24	2.05		2.17
38-4A	3.5	3.2	3.1		3.27	1.92	2.3	2.6	2.6	2.50	1.47	4.0	4.0	3.5	3.83	2.25
WEB B	3.8	4.0	3.7		3.83	2.25	3.8	2.7	2.4	2.97	1.74	4.0	4.0	3.6	3.87	2.27
WEB C	3.5	3.8	3.1		3.47	2.04	2.8	2.0	2.1	2.30	1.35	3.3	3.0	3.0	3.10	1.82
WEB D	3.6	3.6	3.6		3.60	2.12	1.5	2.0	1.6	1.70	1.00	3.3	3.5	3.5	3.43	2.02
WEB E	3.5	INF	3.2		(3.35)	(1.97)	1.7	2.1	2.6	2.13	1.25	3.5	3.0	3.0	3.17	1.86
Avg. Mils	3.58	(3.65)	3.34		(3.52)		2.42	2.28	2.26	2.32		3.62	3.50	3.32	3.48	
Avg.OZ/SF	2.11	(2.15)	1.96			(2.07)	1.42	1.34	1.33		1.36	2.13	2.06	1.95		2.05

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR E-3	OPTR I-4	OPTR I-1	OPTR	AVG MILS	AVG OZ/SF	OPTR E-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR I-1	OPTR E-3	AVG MILS	AVG OZ/SF
38-5A	4.2	3.8	3.3		3.77	2.22	1.6	2.0	2.5	2.03	1.20	3.5	4.5	3.5	3.83	2.25
B	4.0	4.2	3.9		4.03	2.37	1.3	2.8	3.5	2.53	1.49	4.0	4.5	4.0	4.17	2.45
FLANGE C	3.6	4.4	3.7		3.90	2.29	2.3	3.0	2.6	2.63	1.55	4.0	4.0	3.5	3.83	2.25
D	4.0	3.6	3.9		3.83	2.25	1.7	1.9	2.0	1.87	1.10	3.3	3.5	3.3	3.37	1.98
E	4.0	4.0	3.8		3.93	2.31	2.2	4.0	3.5	3.23	1.90	4.0	4.0	3.5	3.83	2.25
Avg. Mils	3.96	4.00	3.72		3.89		1.82	2.74	2.82	2.46		3.76	4.10	3.56	3.81	
Avg.OZ/SF	2.33	2.35	2.19			2.29	1.07	1.61	1.66		1.45	2.21	2.41	2.09		2.24
38-5A	3.5	3.6	3.7		3.60	2.12	2.8	3.2	3.1	3.03	1.78	3.5	4.5	3.5	3.83	2.25
B	3.7	4.0	3.2		3.63	2.14	2.3	3.0	1.9	2.40	1.41	3.5	4.0	3.0	3.50	2.06
C	3.5	3.4	4.1		3.67	2.16	3.6	1.5	3.1	2.73	1.61	3.5	4.0	3.0	3.50	2.06
WEB D	3.4	3.0	3.4		3.27	1.92	2.7	2.5	2.2	2.47	1.45	3.8	3.5	3.0	3.43	2.02
E	3.5	3.4	2.9		3.27	1.92	1.8	2.8	3.2	2.60	1.53	3.5	4.0	3.5	3.67	2.16
Avg. Mils	3.52	3.48	3.46		3.49		2.64	2.60	2.70	2.65		3.56	4.00	3.20	3.59	
Avg.OZ/SF	2.07	2.05	2.04			2.05	1.55	1.53	1.59		1.56	2.09	2.35	1.88		2.11

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
44-1A							9.5	10.0	10.0	9.83	5.78	10.0	11.0	10.0	10.33	6.08
FLANGE B							10.0	11.0	11.0	10.67	6.27	11.0	12.0	11.0	11.33	6.67
FLANGE C							8.0	8.0	8.0	8.00	4.71	10.0	9.3	10.0	9.77	5.74
FLANGE D							9.5	10.0	9.9	9.80	5.76	10.0	12.0	11.0	11.00	6.47
FLANGE E							8.5	9.5	8.0	8.67	5.10	9.5	9.5	10.0	9.67	5.69
Avg. Mils							9.10	9.70	9.38	9.39		10.10	10.76	10.40	10.42	
Avg.OZ/SF							5.35	5.71	5.52		5.53	5.94	6.33	6.12		6.13
44-1A							9.0	10.0	9.0	9.33	5.49	11.0	11.0	10.0	10.67	6.27
WEB B							9.0	8.5	9.5	9.00	5.29	11.0	11.0	10.0	10.67	6.27
WEB C							9.0	9.5	8.0	8.33	5.20	10.5	10.0	10.0	10.17	5.98
WEB D							9.0	9.5	8.5	9.00	5.29	11.0	12.0	10.0	11.00	6.47
WEB E							9.0	10.0	10.5	9.83	5.78	11.0	12.0	11.0	11.33	6.67
Avg. Mils							9.00	9.50	9.10	9.20		10.90	11.20	10.20	10.77	
Avg.OZ/SF							5.29	5.59	5.35		5.41	6.41	6.59	6.00		6.33
44-2A							8.0	9.0	9.0	8.67	5.10	10.0	10.0	9.0	9.67	5.69
FLANGE B							9.0	8.5	8.0	8.50	5.00	9.0	10.0	10.0	9.67	5.69
FLANGE C							8.0	8.0	9.5	8.50	5.00	9.0	9.0	10.0	9.33	5.49
FLANGE D							7.5	8.0	9.5	8.33	4.90	8.5	9.0	10.0	9.17	5.39
FLANGE E							8.0	7.5	7.5	7.67	4.51	9.0	9.0	9.0	9.00	5.29
Avg. Mils							8.10	8.20	8.70	8.33		9.10	9.40	9.60	9.37	
Avg.OZ/SF							4.76	4.82	5.12		4.90	5.35	5.53	5.65		5.51
44-2A							9.0	9.0	9.0	9.00	5.29	10.0	9.5	10.0	9.83	5.78
WEB B							10.0	10.0	11.0	10.33	6.08	12.0	13.0	12.0	12.33	7.25
WEB C							8.5	9.0	8.5	8.67	5.10	11.0	11.0	10.0	10.67	6.27
WEB D							9.5	10.0	9.5	9.67	5.69	11.0	12.0	10.0	11.00	6.47
WEB E							9.0	10.0	10.0	9.67	5.69	12.0	13.0	12.0	12.33	7.25
Avg. Mils							9.20	9.60	9.60	9.47		11.20	11.70	10.80	11.23	
Avg. OZ/SF							5.41	5.65	5.65		5.57	6.59	6.88	6.35		6.61

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
44-3A							7.5	8.0	8.0	7.83	4.61	9.5	9.5	8.0	9.00	5.29
FLANGE B							7.0	7.5	7.5	7.33	4.31	9.0	9.0	9.0	9.00	5.29
FLANGE C							8.0	8.5	8.0	8.17	4.80	9.5	9.0	9.0	9.17	5.39
FLANGE D							7.5	8.0	7.5	7.67	4.51	9.0	8.8	9.0	8.93	5.25
FLANGE E							6.5	7.0	7.0	6.83	4.02	8.5	8.5	8.0	8.33	4.90
Avg. Mils							7.30	7.80	7.60	7.57		9.10	8.96	8.60	8.89	
Avg.OZ/SF							4.29	4.59	4.47		4.45	5.35	5.27	5.06		5.23
44-3A							7.5	8.0	8.5	8.00	4.71	9.0	9.0	10.0	9.33	5.49
WEB B							8.0	8.5	8.5	8.33	4.90	9.0	9.5	10.0	9.50	5.59
WEB C							8.0	9.0	8.0	8.33	4.90	9.5	9.5	10.0	9.67	5.69
WEB D							9.0	10.0	10.5	9.83	5.78	11.5	12.0	11.0	11.50	6.76
WEB E							8.5	8.5	8.5	8.50	5.00	9.5	9.5	10.0	9.67	5.69
Avg. Mils							8.20	8.80	8.80	8.60		9.70	9.90	10.20	9.93	
Avg.OZ/SF							4.82	5.18	5.18		5.06	5.71	5.82	6.00		5.84
44-4A							7.0	7.5	8.0	7.50	4.41	9.5	9.5	9.0	9.33	5.49
FLANGE B							8.0	9.5	8.5	8.67	5.10	9.0	10.0	10.0	9.67	5.69
FLANGE C							8.0	8.2	8.5	8.23	4.84	9.0	9.8	10.0	9.60	5.65
FLANGE D							8.0	8.5	9.0	8.50	5.00	9.5	9.5	10.0	9.67	5.69
FLANGE E							7.5	8.5	8.5	8.17	4.80	10.0	9.8	10.0	9.93	5.84
Avg. Mils							7.70	8.44	8.50	8.21		9.40	9.72	9.80	9.64	
Avg.OZ/SF							4.53	4.96	5.00		4.83	5.53	5.72	5.76		5.67
44-4A							8.5	9.5	8.5	8.83	5.20	10.0	11.0	11.0	10.67	6.27
WEB B							9.0	10.0	9.0	9.33	5.49	12.0	12.0	11.0	11.67	6.86
WEB C							8.0	9.5	9.5	9.00	5.29	12.0	11.0	11.0	11.33	6.67
WEB D							9.0	10.0	10.0	9.67	5.69	12.0	12.0	11.0	11.67	6.86
WEB E							9.5	10.0	10.0	9.83	5.78	12.0	12.0	12.0	12.00	7.06
Avg. Mils							8.80	9.80	9.40	9.33		11.60	11.60	11.20	11.47	
Avg.OZ/SF							5.18	5.76	5.53		5.49	6.82	6.82	6.59		6.74

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
44-5A							7.0	8.5	8.0	7.83	4.61	9.5	9.5	9.0	9.33	5.49
FLANGE B							7.0	8.0	8.0	7.67	4.51	9.0	9.5	10.0	9.50	5.59
FLANGE C							8.5	9.2	10.0	9.23	5.43	9.5	11.0	10.0	10.17	5.98
FLANGE D							8.0	8.0	8.0	8.00	4.71	9.0	9.0	10.0	9.33	5.49
FLANGE E							7.5	7.5	8.0	7.67	4.51	9.0	9.5	9.0	9.17	5.39
Avg. Mils							7.60	8.24	8.40	8.08		9.20	9.70	9.60	9.50	
Avg.OZ/SF							4.47	4.85	4.94		4.75	5.41	5.71	5.65		5.59
44-5A							10.0	10.0	10.0	10.00	5.88	11.0	12.0	13.0	12.00	7.06
WEB B							9.0	9.5	9.0	9.17	5.39	10.5	10.0	10.0	10.17	5.98
WEB C							9.0	10.0	10.0	9.67	5.69	11.0	12.0	11.0	11.33	6.67
WEB D							9.0	9.0	9.0	9.00	5.29	10.0	11.0	10.0	10.33	6.08
WEB E							11.0	13.0	12.0	12.00	7.06	14.0	14.0	14.0	14.00	8.24
Avg. Mils							9.60	10.30	10.00	9.97		11.30	11.80	11.60	11.57	
Avg.OZ/SF							5.65	6.06	5.88		5.86	6.65	6.94	6.82		6.80
45-1A							8.5	7.6	8.0	8.03	4.73	8.5	8.5	9.0	8.67	5.10
FLANGE B							7.5	6.6	7.0	7.03	4.14	8.0	8.2	9.0	8.40	4.94
FLANGE C							7.5	7.1	7.5	7.37	4.33	8.0	8.5	9.0	8.50	5.00
FLANGE D							7.5	6.6	6.5	6.87	4.04	8.0	8.0	8.0	8.00	4.71
FLANGE E							6.5	7.1	6.5	6.70	3.94	8.0	8.0	8.0	8.00	4.71
Avg. Mils							7.50	7.00	7.10	7.20		8.10	8.24	8.60	8.31	
Avg.OZ/SF							4.41	4.12	4.18		4.24	4.76	4.85	5.06		4.89
45-1A							10.0	8.3	10.5	9.60	5.65	10.0	9.5	10.0	9.83	5.78
WEB B							9.5	8.3	8.5	8.77	5.16	9.5	9.5	10.0	9.67	5.69
WEB C							10.0	8.3	8.5	8.93	5.25	9.5	9.5	10.0	9.67	5.69
WEB D							8.5	8.3	8.5	8.43	4.96	9.0	9.5	10.0	9.50	5.59
WEB E							8.0	8.3	8.0	8.10	4.76	9.0	9.0	9.0	9.00	5.29
Avg. Mils							9.20	8.30	8.80	8.77		9.40	9.40	9.80	9.53	
Avg.OZ/SF							5.41	4.88	5.18		5.16	5.53	5.53	5.76		5.61

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
45-2A							7.5	6.3	6.5	6.77	3.98	8.0	8.0	8.0	8.00	4.71
B							6.0	6.1	6.5	6.20	3.65	8.0	8.0	8.0	8.00	4.71
FLANGE C							7.0	6.1	6.5	6.53	3.84	8.0	8.5	8.0	8.17	4.80
D							7.0	6.9	7.0	6.97	4.10	8.0	8.5	8.0	8.17	4.80
E							6.5	7.1	7.0	6.87	4.04	8.5	8.5	8.0	8.33	4.90
Avg. Mils							6.80	6.50	6.70	6.67		8.10	8.30	8.00	8.13	
Avg.OZ/SF							4.00	3.82	3.94		3.92	4.76	4.88	4.71		4.78
45-2A							9.5	8.8	9.5	9.27	5.45	10.0	9.5	10.0	9.83	5.78
B							9.0	9.0	9.0	9.00	5.29	10.5	10.0	10.0	10.17	5.98
WEB C							9.0	8.3	8.5	8.60	5.06	10.0	9.8	10.0	9.93	5.84
D							8.0	7.8	8.0	7.93	4.67	9.0	9.0	9.0	9.00	5.29
E							8.5	7.8	8.0	8.10	4.76	9.0	9.0	10.0	9.33	5.49
Avg. Mils							8.80	8.34	8.60	8.58		9.70	9.46	9.80	9.65	
Avg.OZ/SF							5.18	4.91	5.06		5.05	5.71	5.56	5.76		5.68
45-3A							6.0	6.1	6.0	6.03	3.55	8.0	8.0	8.0	8.00	4.71
B							6.0	5.9	6.0	5.97	3.51	7.5	8.0	8.0	7.83	4.61
FLANGE C							6.5	6.2	6.0	6.23	3.67	8.0	8.0	8.0	8.00	4.71
D							6.5	6.1	6.0	6.20	3.65	8.0	8.0	8.0	8.00	4.71
E							7.0	5.9	6.0	6.30	3.71	8.0	7.8	7.0	7.60	4.47
Avg. Mils							6.40	6.04	6.00	6.15		7.90	7.96	7.80	7.89	
Avg.OZ/SF							3.76	3.55	3.53		3.61	4.65	4.68	4.59		4.64
45-3A							8.0	7.8	8.0	7.93	4.67	8.0	8.5	8.0	8.17	4.80
B							8.0	7.8	8.5	8.10	4.76	9.5	9.0	9.0	9.17	5.39
WEB C							9.0	8.0	8.5	8.50	5.00	9.0	9.0	9.0	9.00	5.29
D							8.0	7.8	8.0	7.93	4.67	9.0	9.0	8.0	8.67	5.10
E							8.0	6.3	6.5	6.93	4.08	8.0	8.0	8.0	8.00	4.71
Avg. Mils							8.20	7.54	7.90	7.88		8.70	8.70	8.40	8.60	
Avg.OZ/SF							4.82	4.44	4.65		4.64	5.12	5.12	4.94		5.06

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
45-4A							6.5	6.1	6.0	6.20	3.65	7.5	7.5	8.0	7.67	4.51
FLANGE B							6.5	6.1	5.5	6.03	3.55	7.5	7.5	7.0	7.33	4.31
C							6.0	6.1	5.5	5.87	3.45	7.5	7.5	7.0	7.33	4.31
D							5.5	5.6	5.5	5.53	3.25	6.5	7.2	7.0	6.90	4.06
E							6.5	5.9	6.0	6.13	3.61	7.5	7.8	7.0	7.43	4.37
Avg. Mils							6.20	5.96	5.70	5.95		7.30	7.50	7.20	7.33	
Avg.OZ/SF							3.65	3.51	3.35		3.50	4.29	4.41	4.24		4.31
45-4A							7.0	6.5	6.5	6.67	3.92	8.0	8.0	8.0	8.00	4.71
B							7.0	6.0	6.5	6.50	3.82	7.5	7.5	8.0	7.67	4.51
WEB C							7.0	6.3	6.5	6.60	3.88	7.5	7.5	8.0	7.67	4.51
D							8.5	7.8	8.5	8.27	4.86	9.0	9.0	9.0	9.00	5.29
E							9.0	8.3	8.5	8.60	5.06	9.0	9.0	9.0	9.00	5.29
Avg. Mils							7.70	6.98	7.30	7.33		8.20	8.20	8.40	8.27	
Avg.OZ/SF							4.53	4.11	4.29		4.31	4.82	4.82	4.94		4.86
45-5A							6.5	6.1	6.0	6.20	3.65	8.0	8.5	8.0	8.17	4.80
FLANGE B							6.0	5.1	5.8	5.63	3.31	7.0	8.2	7.0	7.40	4.35
C							6.0	5.4	5.5	5.63	3.31	7.0	8.5	8.0	7.83	4.61
D							6.0	5.6	5.5	5.70	3.35	7.0	8.2	8.0	7.73	4.55
E							6.5	5.3	6.0	5.93	3.49	7.0	9.2	7.0	7.73	4.55
Avg. Mils							6.20	5.50	5.76	5.82		7.20	8.52	7.60	7.77	
Avg.OZ/SF							3.65	3.24	3.39		3.42	4.24	5.01	4.47		4.57
45-5A							7.5	6.8	7.0	7.10	4.18	8.0	8.5	8.0	8.17	4.80
B							6.5	6.1	6.5	6.37	3.74	7.5	8.2	8.0	7.90	4.65
WEB C							7.0	7.2	7.5	7.23	4.25	8.0	8.8	9.0	8.60	5.06
D							7.0	6.3	6.5	6.60	3.88	8.0	8.5	8.0	8.17	4.80
E							8.0	8.3	8.0	8.10	4.76	9.0	9.5	9.0	9.17	5.39
Avg. Mils							7.20	6.94	7.10	7.08		8.10	8.70	8.40	8.40	
Avg.OZ/SF							4.24	4.08	4.18		4.16	4.76	5.12	4.94		4.94

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
46-1A							8.0	7.4	8.0	7.80	4.59	8.0	9.0	8.0	8.33	4.90
B							8.5	7.7	8.0	8.07	4.74	8.0	8.8	8.0	8.27	4.86
FLANGE C							7.0	6.9	8.0	7.30	4.29	8.0	8.5	9.0	8.50	5.00
D							7.0	8.2	7.0	7.40	4.35	8.0	9.0	9.0	8.67	5.10
E							7.0	7.4	7.5	7.30	4.29	8.0	9.0	9.0	8.67	5.10
Avg. Mils							7.50	7.52	7.70	7.57		8.00	8.86	8.60	8.49	
Avg.OZ/SF							4.41	4.42	4.53		4.45	4.71	5.21	5.06		4.99
46-1A							9.5	9.0	8.0	8.83	5.20	9.0	9.2	9.0	9.07	5.33
B							9.0	9.0	8.0	8.67	5.10	9.0	9.0	9.0	9.00	5.29
WEB C							8.0	8.5	7.0	7.83	4.61	8.0	8.8	9.0	8.60	5.06
D							10.0	9.2	9.0	9.40	5.53	10.0	9.8	10.0	9.93	5.84
E							9.0	8.0	7.0	8.00	4.71	9.0	9.0	9.0	9.00	5.29
Avg. Mils							9.10	8.74	7.80	8.55		9.00	9.16	9.20	9.12	
Avg.OZ/SF							5.35	5.14	4.59		5.03	5.29	5.39	5.41		5.36
46-2A							7.0	7.9	7.0	7.30	4.29	8.0	8.5	9.0	8.50	5.00
B							7.0	7.7	7.0	7.23	4.25	8.0	8.2	8.0	8.07	4.74
FLANGE C							7.5	7.7	7.0	7.40	4.35	8.0	9.0	9.0	8.67	5.10
D							7.0	7.7	6.5	7.07	4.16	8.0	8.2	8.0	8.07	4.74
E							7.0	7.7	7.5	7.40	4.35	9.0	9.5	9.0	9.17	5.39
Avg. Mils							7.10	7.74	7.00	7.28		8.20	8.68	8.60	8.49	
Avg.OZ/SF							4.18	4.55	4.12		4.28	4.82	5.11	5.06		5.00
46-2A							9.0	8.9	8.0	8.63	5.08	9.0	9.0	9.0	9.00	5.29
B							9.5	8.5	6.0	8.00	4.71	8.5	8.5	9.0	8.67	5.10
WEB C							10.0	9.0	8.0	9.00	5.29	8.5	9.2	10.0	9.23	5.43
D							9.0	9.5	8.0	8.83	5.20	9.0	9.5	9.0	9.17	5.39
E							10.0	9.5	8.0	9.17	5.39	9.0	10.0	10.0	9.67	5.69
Avg. Mils							9.50	9.08	7.60	8.73		8.80	9.24	9.40	9.15	
Avg.OZ/SF							5.59	5.34	4.47		5.13	5.18	5.44	5.53		5.38

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
46-3A							6.5	7.7	7.0	7.07	4.16	8.0	8.5	8.0	8.17	4.81
FLANGE B							7.5	7.2	7.5	7.40	4.35	8.0	8.0	8.0	8.00	4.71
C							7.5	7.9	6.0	7.13	4.20	8.0	8.0	9.0	8.33	4.90
D							7.0	9.2	6.5	7.57	4.45	8.0	7.8	9.0	8.27	4.86
E							7.0	7.2	6.0	6.73	3.96	8.0	8.0	8.0	8.00	4.71
Avg. Mils							7.10	7.84	6.60	7.18		8.00	8.06	8.40	8.15	
Avg.OZ/SF							4.18	4.61	3.88		4.22	4.71	4.74	4.94		4.80
46-3A							8.0	8.5	7.0	7.83	4.61	9.0	8.8	9.0	8.93	5.25
B							8.5	8.8	8.0	8.43	4.96	9.0	9.0	9.0	9.00	5.29
WEB C							8.0	8.5	7.5	8.00	4.71	8.0	8.5	9.0	8.50	5.00
D							10.5	8.5	7.5	8.83	5.20	9.0	9.0	10.0	9.33	5.49
E							10.5	9.0	8.0	9.17	5.39	8.5	9.5	10.0	9.33	5.49
Avg. Mils							9.10	8.66	7.60	8.45		8.70	8.96	9.40	9.02	
Avg.OZ/SF							5.35	5.09	4.47		4.97	5.12	5.27	5.53		5.31
46-4A							6.0	7.7	6.5	6.73	3.96	8.0	7.5	8.0	7.83	4.61
FLANGE B							5.5	6.2	6.0	5.90	3.47	7.0	7.2	8.0	7.40	4.35
C							7.0	6.7	5.5	6.40	3.76	7.0	7.5	8.0	7.50	4.41
D							7.0	6.5	5.5	6.33	3.73	7.0	7.2	7.0	7.07	4.16
E							6.0	7.2	6.0	6.40	3.76	7.0	7.5	7.0	7.17	4.22
Avg. Mils							6.30	6.86	5.90	6.35		7.20	7.38	7.60	7.39	
Avg.OZ/SF							3.71	4.04	3.47		3.74	4.24	4.34	4.47		4.35
46-4A							8.5	8.0	7.0	7.83	4.61	8.0	8.5	8.0	8.17	4.80
B							7.5	8.0	6.0	7.17	4.22	8.0	7.8	8.0	7.93	4.67
WEB C							8.5	7.5	7.0	7.67	4.51	8.0	8.2	9.0	8.40	4.94
D							8.5	8.0	6.0	7.50	4.41	8.0	8.0	8.0	8.00	4.71
E							8.0	6.8	6.0	6.93	4.08	7.0	7.5	8.0	7.50	4.41
Avg. Mils							8.20	7.66	6.40	7.42		7.80	8.00	8.20	8.00	
Avg.OZ/SF							4.82	4.51	3.76		4.36	4.59	4.71	4.82		4.71

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
46-5A							7.0	6.7	5.5	6.40	3.76	7.0	7.0	8.0	7.33	4.31
FLANGE B							6.5	5.7	5.5	5.90	3.47	7.0	6.5	7.0	6.83	4.02
C							6.5	6.8	6.0	6.43	3.78	7.0	7.0	8.0	7.33	4.31
D							7.5	5.9	5.0	6.13	3.61	7.0	7.0	7.0	7.00	4.12
E							6.0	6.7	6.0	6.23	3.67	7.0	6.5	7.0	6.83	4.02
Avg. Mils							6.70	6.36	5.60	6.22		7.00	6.80	7.40	7.07	
Avg.OZ/SF							3.94	3.74	3.29		3.66	4.12	4.00	4.35		4.16
46-5A							8.5	7.5	6.5	7.50	4.41	8.0	7.8	-	7.90	4.65
B							7.5	7.5	6.0	7.00	4.12	8.0	7.8	-	7.90	4.65
WEB C							7.0	7.7	6.0	6.90	4.06	8.0	7.5	-	7.75	4.56
D							6.5	6.8	6.0	6.43	3.78	7.5	7.2	-	7.35	4.32
E							7.0	7.8	6.0	6.93	4.08	8.0	7.2	-	7.60	4.47
Avg. Mils							7.30	7.46	6.10	6.95		7.90	7.50	-	7.70	
Avg.OZ/SF							4.29	4.39	3.59		4.09	4.65	4.41	-		4.53
47-1A							8.0	7.3	7.0	7.43	4.37	9.0	7.5	9.0	8.50	5.00
FLANGE B							7.5	7.8	7.0	7.43	4.37	9.0	7.5	10.0	8.83	5.20
C							8.0	7.8	6.0	7.27	4.27	8.0	7.5	9.0	8.17	4.80
D							7.5	8.8	7.0	7.77	4.57	8.5	7.5	9.0	8.33	4.90
E							8.0	7.3	7.0	7.43	4.37	8.5	7.5	9.0	8.33	4.90
Avg. Mils							7.80	7.80	6.80	7.47		8.60	7.50	9.20	8.43	
Avg.OZ/SF							4.59	4.59	4.00		4.39	5.06	4.41	5.41		4.96
47-1A							8.0	7.5	8.0	7.83	4.61	9.0	8.5	10.0	9.17	5.39
B							8.0	8.0	7.5	7.83	4.61	8.5	8.0	10.0	8.83	5.20
WEB C							7.5	7.0	7.5	7.33	4.31	8.5	8.0	10.0	8.83	5.20
D							9.0	7.2	8.0	8.07	4.74	9.5	8.5	10.0	9.33	5.49
E							8.5	7.0	8.0	7.83	4.61	9.5	8.0	10.0	9.17	5.39
Avg. Mils							8.20	7.34	7.80	7.78		9.00	8.20	10.00	9.07	
Avg.OZ/SF							4.82	4.32	4.59		4.58	5.29	4.82	5.88		5.33

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
47-2A							8.5	7.8	8.0	8.10	4.76	9.0	8.0	10.0	9.00	5.29
B							8.0	8.8	8.0	8.27	4.86	9.0	8.2	10.0	9.07	5.33
FLANGE C							8.5	8.3	8.0	8.27	4.86	9.0	8.0	9.0	8.67	5.10
D							8.5	7.5	7.0	7.67	4.51	8.0	7.5	9.0	8.17	4.80
E							8.0	7.3	7.5	7.60	4.47	8.0	7.5	9.0	8.17	4.80
Avg. Mils							8.30	7.94	7.70	7.98		8.60	7.84	9.40	8.61	
Avg.OZ/SF							4.88	4.67	4.53		4.69	5.06	4.61	5.53		5.07
47-2A							9.0	8.0	9.0	8.67	5.10	9.0	8.8	12.0	9.93	5.84
B							8.0	7.5	8.0	7.83	4.61	9.0	8.0	10.0	9.00	5.29
WEB C							9.0	8.0	7.0	8.00	4.71	10.0	8.5	10.0	9.50	5.59
D							9.0	9.0	8.0	8.67	5.10	10.0	9.0	11.0	10.00	5.88
E							8.0	8.0	8.0	8.00	4.71	9.0	8.2	10.0	9.07	5.33
Avg. Mils							8.60	8.10	8.00	8.23		9.40	8.50	10.60	9.50	
Avg.OZ/SF							5.06	4.76	4.71		4.84	5.53	5.00	6.24		5.59
47-3A							9.0	8.8	6.5	8.10	4.76	9.0	7.8	9.0	8.60	5.06
B							7.5	7.3	6.5	7.10	4.18	8.5	7.5	9.0	8.33	4.90
FLANGE C							7.5	8.3	7.5	7.77	4.57	8.5	7.5	8.0	8.00	4.71
D							8.0	7.3	6.5	7.27	4.27	8.0	7.5	8.0	7.83	4.61
E							7.0	7.8	6.0	6.93	4.08	9.0	7.5	9.0	8.50	5.00
Avg. Mils							7.80	7.90	6.60	7.43		8.60	7.56	8.60	8.25	
Avg.OZ/SF							4.59	4.65	3.88		4.37	5.06	4.45	5.06		4.86
47-3A							7.5	7.0	7.0	7.17	4.22	8.5	7.8	10.0	8.77	5.16
B							7.0	6.0	6.5	6.50	3.82	8.0	7.2	9.0	8.07	4.74
WEB C							6.5	6.0	6.0	6.17	3.63	8.0	7.2	8.0	7.73	4.55
D							8.0	7.0	7.5	7.50	4.41	9.0	8.5	10.0	9.17	5.39
E							8.0	7.0	8.0	7.67	4.51	9.0	8.5	9.0	8.83	5.20
Avg. Mils							7.40	6.60	7.00	7.00		8.50	7.84	9.20	8.51	
Avg.OZ/SF							4.35	3.88	4.12		4.12	5.00	4.61	5.41		5.01

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
47-4A							8.5	7.8	7.0	7.77	4.57	8.5	7.8	9.0	8.43	4.96
FLANGE B							8.5	6.8	6.0	7.10	4.18	8.0	7.2	9.0	8.07	4.74
C							8.0	7.3	6.5	7.27	4.27	8.0	7.5	8.0	7.83	4.61
D							8.5	8.3	6.5	7.77	4.57	8.5	7.5	8.0	8.00	4.71
E							8.5	7.8	6.5	7.60	4.47	8.0	7.5	9.0	8.17	4.80
Avg. Mils							8.40	7.60	6.50	7.50		8.20	7.50	8.60	8.10	
Avg.OZ/SF							4.94	4.47	3.82		4.41	4.82	4.41	5.06		4.76
47-4A							8.5	8.0	8.0	8.17	4.80	9.0	8.8	10.0	9.27	5.45
B							8.0	8.0	7.5	7.83	4.61	9.0	8.2	10.0	9.07	5.33
WEB C							7.5	7.8	7.5	7.60	4.47	9.0	8.0	10.0	9.00	5.29
D							8.5	8.0	7.5	8.00	4.71	9.0	8.8	10.0	9.27	5.45
E							8.0	8.0	7.5	7.83	4.61	9.0	8.8	10.0	9.27	5.45
Avg. Mils							8.10	7.96	7.60	7.89		9.00	8.52	10.00	9.17	
Avg.OZ/SF							4.76	4.68	4.47		4.64	5.29	5.01	5.88		5.39
47-5A							8.5	7.6	7.0	7.70	4.53	8.0	8.0	9.0	8.33	4.90
FLANGE B							7.5	7.8	6.0	7.10	4.18	8.0	7.5	9.0	8.17	4.80
C							7.5	7.3	6.5	7.10	4.18	8.0	7.5	9.0	8.17	4.80
D							7.5	7.6	6.5	7.20	4.24	8.5	7.8	9.0	8.43	4.96
E							7.5	6.8	6.0	6.77	3.98	8.5	7.5	9.0	8.33	4.90
Avg. Mils							7.70	7.42	6.40	7.17		8.20	7.66	9.00	8.29	
Avg.OZ/SF							4.53	4.36	3.76		4.22	4.82	4.51	5.29		4.87
47-5A							8.0	7.8	8.0	7.93	4.67	9.0	8.5	11.0	9.50	5.59
B							8.0	7.0	7.0	7.33	4.31	9.0	8.5	12.0	9.83	5.78
WEB C							8.0	7.0	7.0	7.33	4.31	8.5	8.5	10.0	9.00	5.29
D							8.5	8.0	8.0	8.17	4.80	9.5	9.5	10.0	9.67	5.69
E							8.0	7.0	7.0	7.33	4.31	8.5	8.5	10.0	9.00	5.29
Avg. Mils							8.10	7.36	7.40	7.62		8.90	8.70	10.60	9.40	
Avg.OZ/SF							4.76	4.33	4.35		4.48	5.24	5.12	6.24		5.53

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
48-1A							6.0	7.5	6.5	6.67	3.92	8.0	8.0	9.0	8.33	4.90
FLANGE B							6.0	7.0	6.5	6.50	3.82	8.0	8.0	9.0	8.33	4.90
C							6.5	7.0	6.0	6.50	3.82	7.5	7.5	8.0	7.67	4.51
D							5.0	5.5	5.0	5.16	3.04	7.5	6.8	7.0	7.10	4.18
E							6.0	6.2	6.0	6.07	3.57	8.0	7.0	8 0	7.67	4.51
Avg. Mils							5.90	6.64	6.00	6.18		7.80	7.46	8.20	7.82	
Avg.OZ/SF							3.47	3.91	3.53		3.64	4.59	4.39	4.82		4.60
48-1A							9.5	9.2	9.0	9.23	5.43	10.0	9.5	10.0	9.83	5.78
WEB B							10.0	10.2	9.0	9.73	5.73	12.0	10.0	12.0	11.33	6.67
C							10.0	9.7	9.5	9.73	5.73	12.0	10.0	12.0	11.33	6.67
D							10.0	10.0	11.5	10.50	6.18	12.0	11.0	11.0	11.33	6.67
E							10.0	10.0	10.0	10.00	5.88	12.0	11.0	12.0	11.67	6.86
Avg. Mils							9.90	9.82	9.80	9.84		11.60	10.30	11.40	11.10	
Avg.OZ/SF							5.82	5.78	5.76		5.79	6.82	6.06	6.71		6.53
48-2A							6.5	7.0	7.0	6.83	4.02	8.5	8.0	9.0	8.50	5.00
FLANGE B							6.0	6.5	6.5	6.33	3.73	8.0	7.5	9.0	8.17	4.80
C							6.0	6.8	6.5	6.43	3.78	8.0	7.5	8.0	7.83	4.61
D							6.0	6.2	6.0	6.07	3.57	8.0	7.2	8.0	7.73	4.55
E							5.0	6.2	7.0	6.07	3.57	8.0	7.2	8.0	7.73	4.55
Avg. Mils							5.90	6.54	6.60	6.35		8.10	7.48	8.40	7.99	
Avg.OZ/SF							3.47	3.85	3.88		3.73	4.76	4.40	4.94		4.70
48-2A							10.0	9.7	9.0	9.57	5.63	11.0	10.0	10.0	10.33	6.08
WEB B							9.0	8.7	9.0	8.90	5.24	10.0	9.0	10.0	9.67	5.69
C							9.0	9.2	9.0	9.07	5.33	10.0	9.5	12.0	10.50	6.18
D							9.5	9.2	9.0	9.23	5.43	11.0	10.0	12.0	11.00	6.47
E							9.0	9.2	9.0	9.07	5.33	10.0	9.5	12.0	10.50	6.18
Avg. Mils							9.30	9.20	9.00	9.17		10.40	9.60	11.20	10.40	
Avg.OZ/SF							5.47	5.41	5.29		5.39	6.12	5.65	6.59		6.12

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
48-3A							6.0	7.5	7.0	6.83	4.02	8.5	7.8	9.0	8.43	4.96
FLANGE B							6.5	7.0	6.0	6.50	3.82	8.5	7.8	9.0	8.43	4.96
FLANGE C							6.0	6.0	6.5	6.17	3.63	8.0	7.2	8.0	7.73	4.55
FLANGE D							6.0	5.5	6.0	5.83	3.43	8.0	7.5	9.0	8.17	4.80
FLANGE E							6.5	6.2	7.5	6.73	3.96	8.0	7.5	8.0	7.83	4.61
Avg. Mils							6.20	6.44	6.60	6.41		8.20	7.56	8.60	8.12	
Avg.OZ/SF							3.65	3.79	3.88		3.77	4.82	4.45	5.06		4.78
48-3A							9.0	7.7	8.0	8.23	4.84	9.5	9.0	10.0	9.50	5.59
WEB B							9.5	9.7	9.5	9.57	5.63	11.0	11.0	12.0	11.33	6.67
WEB C							8.5	9.4	9.0	8.97	5.27	11.0	9.5	12.0	10.83	6.37
WEB D							9.5	9.7	10.0	9.73	5.73	11.0	10.0	13.0	11.33	6.67
WEB E							9.5	10.2	8.5	9.40	5.53	11.0	10.0	12.0	11.00	6.47
Avg. Mils							9.20	9.34	9.00	9.18		10.70	9.90	11.80	10.80	
Avg.OZ/SF							5.41	5.49	5.29		5.40	6.29	5.82	6.94		6.35
48-4A							5.5	6.5	7.0	6.33	3.73	7.0	7.5	8.0	7.50	4.41
FLANGE B							6.0	6.5	6.0	6.17	3.63	7.0	6.5	8.0	7.17	4.22
FLANGE C							5.5	6.5	6.0	6.00	3.53	7.5	6.8	8.0	7.43	4.37
FLANGE D							5.5	5.8	5.5	5.60	3.29	7.0	6.5	9.0	7.50	4.41
FLANGE E							5.5	6.2	6.5	6.07	3.57	7.5	7.0	9.0	7.83	4.61
Avg. Mils							5.60	6.30	6.20	6.03		7.20	6.86	8.40	7.49	
Avg.OZ/SF							3.29	3.71	3.65		3.55	4.24	4.04	4.94		4.41
48-4A							8.0	8.2	7.0	7.73	4.55	9.0	9.0	11.0	9.67	5.69
WEB B							8.5	8.4	8.0	8.30	4.88	9.0	8.8	10.0	9.27	5.45
WEB C							8.5	8.2	8.0	8.23	4.84	9.5	9.0	10.0	9.50	5.59
WEB D							8.0	8.2	8.0	8.07	4.74	9.0	9.2	10.0	9.40	5.53
WEB E							8.5	8.7	8.0	8.40	4.94	10.0	9.5	11.0	10.17	5.98
Avg. Mils							8.30	8.34	7.80	8.15		9.30	9.10	10.40	9.60	
Avg.OZ/SF							4.88	4.91	4.59		4.79	5.47	5.35	6.12		5.65

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-1	OPTR E-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-4	OPTR G-1	AVG MILS	AVG OZ/SF
48-5A							5.5	6.8	7.0	6.43	3.78	7.5	7.0	8.0	7.50	4.41
B							5.5	6.0	6.5	6.00	3.53	7.5	6.8	8.0	7.43	4.37
FLANGE C							5.5	6.0	7.0	6.17	3.63	8.0	6.5	8.0	7.50	4.41
D							5.5	7.0	6.5	6.33	3.73	8.0	7.8	8.0	7.93	4.67
E							6.0	6.0	6.0	6.00	3.53	7.5	7.0	8.0	7.50	4.41
Avg. Mils							5.60	6.36	6.60	6.19		7.70	7.02	8.00	7.57	
Avg.OZ/SF							3.29	3.74	3.88		3.64	4.53	4.13	4.71		4.46
48-5A							8.0	9.0	8.0	8.33	4.90	10.0	9.0	9.0	9.33	5.49
B							8.0	8.2	8.0	8.07	4.74	9.5	9.2	10.0	9.57	5.63
WEB C							8.0	8.2	8.0	8.07	4.74	9.0	9.0	10.0	9.33	5.49
D							9.0	9.2	8.5	8.90	5.24	10.0	9.2	10.0	9.73	5.73
E							8.0	7.7	6.0	7.23	4.25	8.5	8.5	9.0	8.67	5.10
Avg. Mils							8.20	8.46	7.70	8.12		9.40	8.98	9.60	9.33	
Avg.OZ/SF							4.82	4.98	4.53		4.78	5.53	5.28	5.65		5.49

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR I-4	OPTR I-1	OPTR E-3	OPTR	AVG MILS	AVG OZ/SF	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
53-1A	4.0	4.5	4.0		4.17	2.45						5.0	4.0	4.0	4.33	2.55
B	3.4	4.8	4.2		4.13	2.43						5.0	4.5	5.0	4.83	2.84
C	3.8	INF	5.2		(4.50)	(2.65)						5.5	4.5	5.0	5.00	2.94
D	4.2	4.1	3.8		4.03	2.37						4.0	4.0	4.0	4.00	2.35
E	3.8	4.6	4.2		4.20	2.47						4.5	4.0	4.0	4.17	2.45
Avg. Mils	3.84	(4.50)	4.28		(4.21)							4.80	4.20	4.40	4.47	
Avg.OZ/SF	2.26	(2.65)	2.52			(2.48)						2.82	2.47	2.59		2.63
53-2A	3.2	4.7	4.8		4.23	2.49						5.0	4.5	4.0	4.50	2.65
B	3.2	INF	4.8		(4.00)	(2.35)						5.0	4.5	4.5	4.67	2.74
C	3.8	4.9	4.6		4.43	2.61						6.0	4.0	4.5	4.83	2.84
D	3.8	4.4	4.1		4.10	2.41						4.0	3.5	4.0	3.83	2.25
E	4.0	4.9	4.1		4.33	2.55						4.0	3.5	4.0	3.83	2.25
Avg. Mils	3.60	(4.72)	4.48		(4.27)							4.80	4.00	4.20	4.33	
Avg.OZ/SF	2.12	(2.78)	2.64			(2.51)						2.82	2.35	2.47		2.55
53-3A	4.0	INF	4.6		(4.30)	(2.53)						5.0	4.0	4.5	4.50	2.65
B	3.8	5.0	4.2		4.33	2.55						4.5	4.0	4.0	4.17	2.45
C	4.0	INF	4.8		(4.40)	(2.59)						5.0	4.0	5.0	4.67	2.74
D	4.2	INF	5.2		(4.70)	(2.76)						5.5	4.5	5.0	5.00	2.94
E	4.0	4.9	4.3		4.40	2.59						5.0	4.3	4.5	4.60	2.71
Avg. Mils	4.00	(4.95)	4.62		(4.52)							5.00	4.16	4.60	4.59	
Avg.OZ/SF	2.35	(2.91)	2.72			(2.66)						2.94	2.45	2.71		2.70
53-4A	4.2	INF	4.5		(4.35)	(2.56)						5.0	4.0	4.5	4.50	2.65
B	4.0	4.7	4.1		4.27	2.51						4.5	4.0	4.5	4.33	2.55
C	4.0	4.9	4.4		4.43	2.61						4.5	4.0	4.0	4.17	2.45
D	4.0	INF	4.4		(4.20)	(2.47)						5.0	4.3	4.5	4.60	2.71
E	4.0	INF	4.3		(4.15)	(2.44)						5.0	3.7	4.5	4.40	2.59
Avg. Mils	4.04	(4.80)	4.34		(4.39)							4.80	4.00	4.40	4.40	
Avg.OZ/SF	2.38	(2.82)	2.55			(2.58)						2.82	2.35	2.59		2.59

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR I-4	OPTR I-1	OPTR E-3	OPTR	AVG MILS	AVG OZ/SF	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
53-5A	4.0	INF	4.0		(4.00)	(2.35)						5.0	4.3	4.5	4.60	2.71
B	4.2	5.0	4.8		4.67	2.74						4.5	4.0	4.0	4.17	2.45
C	4.4	INF	4.6		(4.50)	(2.65)						4.5	4.0	4.0	4.17	2.45
D	4.6	4.8	4.6		4.67	2.74						5.0	4.0	4.0	4.33	2.55
E	3.8	4.7	3.7		4.07	2.39						4.5	4.0	4.5	4.33	2.55
Avg. Mils	4.20	(4.83)	4.34		(4.46)							4.70	4.06	4.20	4.32	
Avg.OZ/SF	2.47	(2.84)	2.55			(2.62)						2.76	2.39	2.47		2.54
54-1A	INF	INF	4.9		-	-						6.0	5.5	6.0	5.83	3.43
B	INF	INF	5.0		-	-						6.0	6.0	6.0	6.00	3.53
C	INF	INF	5.2		-	-						7.0	6.0	7.0	6.67	3.92
D	INF	INF	4.9		-	-						5.5	5.0	5.0	5.17	3.04
E	INF	INF	INF		-	-						5.0	4.5	5.0	4.83	2.84
Avg. Mils	-	-	(5.00)		-							5.90	5.40	5.80	5.70	
Avg.OZ/SF	-	-	(2.94)			-						3.47	3.18	3.41		3.35
54-2A	INF	INF	INF		-	-						7.0	6.5	6.5	6.67	3.92
B	INF	INF	INF		-	-						7.0	5.5	5.5	6.00	3.53
C	INF	INF	4.3		-	-						6.0	5.0	5.0	5.33	3.14
D	INF	INF	5.2		-	-						7.0	6.5	5.5	6.33	3.73
E	INF	INF	INF		-	-						6.5	6.0	6.0	6.17	3.63
Avg. Mils	-	-	-		-							6.70	5.90	5.70	6.10	
Avg.OZ/SF	-	-	-			-						3.94	3.47	3.35		3.59
54-3A	INF	INF	4.3		-	-						7.0	4.5	5.5	5.67	3.33
B	INF	INF	INF		-	-						8.0	6.0	7.0	7.00	4.12
C	INF	INF	INF		-	-						6.0	6.0	6.0	6.00	3.53
D	INF	INF	4.5		-	-						6.5	5.5	6.0	6.00	3.53
E	INF	INF	4.8		-	-						6.0	4.8	5.5	5.43	3.20
Avg. Mils	-	-	(4.53)		-							6.70	5.36	6.00	6.02	
Avg.OZ/SF	-	-	(2.67)			-						3.94	3.15	3.53		3.54

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR I-4	OPTR I-1	OPTR E-3	OPTR	AVG MILS	AVG OZ/SF	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
54-4A	INF	INF	4.7		-	-						7.0	5.0	6.0	6.00	3.53
B	INF	INF	4.8		-	-						7.0	4.8	5.5	5.77	3.39
C	INF	INF	4.6		-	-						6.5	5.5	5.5	5.83	3.43
D	INF	INF	4.9		-	-						5.5	5.5	5.5	5.50	3.24
E	INF	INF	4.8		-	-						7.0	5.0	5.0	5.67	3.33
Avg. Mils	-	-	4.76		-							6.60	5.16	5.50	5.75	
Avg.OZ/SF	-	-	2.80			-						3.88	3.04	3.24		3.39
54-5A	INF	INF	4.0		-	-						6.0	5.0	5.5	5.50	3.24
B	INF	INF	4.5		-	-						6.0	5.0	5.0	5.33	3.14
C	INF	INF	5.0		-	-						7.0	5.0	5.5	5.83	3.43
D	INF	INF	5.0		-	-						6.0	5.5	6.0	5.83	3.43
E	INF	INF	4.6		-	-						5.0	5.0	5.0	5.00	2.94
Avg. Mils	-	-	4.62		-							6.00	5.10	5.40	5.50	
Avg.OZ/SF	-	-	2.72			-						3.53	3.00	3.18		3.24
55-1A	2.8	2.6	2.7		2.70	1.59						3.0	3.0	3.5	3.17	1.86
B	3.0	2.6	2.8		2.80	1.65						3.0	3.0	3.0	3.00	1.76
C	2.8	2.4	2.9		2.70	1.59						4.0	2.8	3.0	3.27	1.92
D	3.2	2.3	2.6		2.70	1.59						3.5	2.5	3.0	3.00	1.76
E	3.0	2.6	2.8		2.80	1.65						3.0	3.0	3.5	3.17	1.86
Avg. Mils	2.96	2.50	2.76		2.74							3.30	2.86	3.20	3.12	
Avg.OZ/SF	1.74	1.47	1.62			1.61						1.94	1.68	1.88		1.83
55-2A	3.0	2.3	2.9		2.73	1.61						3.5	3.5	3.5	3.50	2.06
B	3.2	2.4	3.2		2.93	1.73						3.5	3.0	3.0	3.17	1.86
C	3.0	2.5	2.9		2.80	1.65						3.5	2.6	3.0	3.03	1.78
D	3.2	2.7	3.0		2.97	1.74						3.5	3.0	3.0	3.17	1.86
E	3.0	2.5	2.9		2.80	1.65						3.5	3.3	3.5	3.43	2.02
Avg. Mils	3.08	2.48	2.98		2.85							3.50	3.08	3.20	3.26	
Avg.OZ/SF	1.81	1.46	1.75			1.67						2.06	1.81	1.88		1.92

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR I-4	OPTR I-1	OPTR E-3	OPTR	AVG MILS	AVG OZ/SF	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
55-3A	2.8	2.5	3.0		2.77	1.63						3.5	3.2	3.5	3.40	2.00
B	3.4	3.0	3.3		3.23	1.90						4.0	3.5	4.0	3.83	2.25
C	3.0	2.7	2.9		2.87	1.69						3.0	2.5	2.8	2.77	1.63
D	3.0	2.9	3.1		3.00	1.76						3.5	3.5	4.0	3.67	2.16
E	3.0	2.3	2.7		2.67	1.57						3.0	2.5	2.7	2.73	1.61
Avg. Mils	3.04	2.68	3.00		2.91							3.40	3.04	3.40	3.28	
Avg.OZ/SF	1.79	1.58	1.76			1.71						2.00	1.79	2.00		1.93
55-4A	3.0	2.7	2.9		2.87	1.69						4.0	3.0	3.5	3.50	2.06
B	3.0	2.2	3.0		2.73	1.61						4.0	2.5	3.0	3.17	1.86
C	3.0	2.5	3.0		2.83	1.67						3.5	3.0	3.5	3.33	1.96
D	3.4	2.5	3.2		3.03	1.78						3.5	3.0	3.5	3.33	1.96
E	2.8	2.5	3.0		2.77	1.63						3.5	3.0	3.5	3.33	1.96
Avg. Mils	3.04	2.48	3.02		2.85							3.70	2.90	3.40	3.33	
Avg.OZ/SF	1.79	1.46	1.78			1.68						2.18	1.71	2.00		1.96
55-5A	2.8	2.3	2.9		2.67	1.57						3.5	3.0	3.5	3.33	1.96
B	2.8	2.7	2.8		2.77	1.63						3.0	2.8	3.0	2.93	1.73
C	3.4	2.8	3.2		3.13	1.84						3.5	2.8	3.0	3.10	1.82
D	3.0	2.9	3.0		2.97	1.74						3.5	2.5	2.8	2.93	1.73
E	3.0	2.9	2.9		2.93	1.73						3.5	3.0	3.5	3.33	1.96
Avg. Mils	3.00	2.72	2.96		2.89							3.40	2.82	3.16	3.13	
Avg.OZ/SF	1.76	1.60	1.74			1.70						2.00	1.66	1.86		1.84
56-1A	3.0	3.5	3.0		3.17	1.86						3.5	3.0	4.0	3.50	2.06
B	3.0	3.3	3.1		3.13	1.84						4.0	3.5	3.5	3.67	2.16
C	3.0	3.5	2.9		3.13	1.84						4.0	3.5	3.5	3.67	2.16
D	2.6	2.5	2.8		2.63	1.55						3.0	3.5	3.5	3.33	1.96
E	3.6	3.4	3.4		3.47	2.04						3.0	3.2	3.5	3.23	1.90
Avg. Mils	3.04	3.24	3.04		3.11							3.50	3.34	3.60	3.48	
Avg.OZ/SF	1.79	1.91	1.79			1.83						2.06	1.96	2.12		2.05

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR I-4	OPTR I-1	OPTR E-3	OPTR	AVG MILS	AVG OZ/SF	OPTR	OPTR	OPTR	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
56-2A	3.2	3.0	3.3		3.17	1.86						3.5	3.5	4.5	3.83	2.25
B	3.0	3.2	3.2		3.13	1.84						3.0	3.0	3.5	3.17	1.86
C	3.8	3.5	3.2		3.50	2.06						4.0	3.3	3.5	3.60	2.12
D	3.4	2.9	3.2		3.17	1.86						4.0	3.3	4.0	3.77	2.22
E	3.4	3.0	3.0		3.13	1.84						4.0	4.0	3.5	3.83	2.25
Avg. Mils	3.36	3.12	3.18		3.22							3.70	3.42	3.80	3.64	
Avg.OZ/SF	1.98	1.84	1.87			1.90						2.18	2.01	2.24		2.14
56-3A	2.8	2.6	3.0		2.80	1.65						3.0	2.8	3.5	3.10	1.82
B	3.2	2.9	2.8		2.97	1.74						3.5	3.0	3.5	3.33	1.96
C	4.0	3.7	3.6		3.77	2.22						4.0	4.0	3.5	3.83	2.25
D	3.4	2.9	3.4		3.23	1.90						3.0	2.8	3.0	2.93	1.73
E	3.0	2.9	3.0		2.97	1.74						4.5	3.0	3.2	3.57	2.10
Avg. Mils	3.28	3.00	3.16		3.15							3.60	3.12	3.34	3.35	
Avg.OZ/SF	1.93	1.76	1.86			1.85						2.12	1.84	1.96		1.97
56-4A	3.0	3.2	3.2		3.13	1.84						3.5	3.3	3.0	3.27	1.92
B	3.4	3.1	3.4		3.30	1.94						3.5	3.3	3.5	3.43	2.02
C	3.4	2.5	3.0		2.97	1.74						3.5	3.0	3.5	3.33	1.96
D	3.0	3.0	3.0		3.00	1.76						3.0	3.5	3.5	3.33	1.96
E	3.2	2.9	3.0		3.03	1.78						2.5	2.9	3.0	2.80	1.65
Avg. Mils	3.20	2.94	3.12		3.09							3.20	3.20	3.30	3.23	
Avg.OZ/SF	1.88	1.73	1.84			1.82						1.88	1.88	1.94		1.90
56-5A	2.8	3.1	3.0		2.97	1.74						3.5	3.5	3.5	3.50	2.06
B	2.8	3.1	3.4		3.10	1.82						3.5	3.5	3.5	3.50	2.06
C	3.6	3.3	3.4		3.43	2.02						3.5	3.2	3.0	3.23	1.90
D	3.0	3.3	3.4		3.23	1.90						4.0	3.5	3.5	3.67	2.16
E	2.8	2.6	3.0		2.80	1.65						3.0	2.8	3.5	3.10	1.82
Avg. Mils	3.00	3.08	3.24		3.11							3.50	3.30	3.40	3.40	
Avg.OZ/SF	1.76	1.81	1.91			1.83						2.06	1.94	2.00		2.00

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR I-4	OPTR I-1	OPTR E-3	OPTR I-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
1-1A	3.4	3.3	3.7	3.8	3.55	2.09	2.5	2.9	3.6	3.00	1.76	4.0	3.5	3.5	3.67	2.16
B	3.4	3.7	3.7	4.0	3.70	2.18	3.1	4.1	2.7	3.30	1.94	4.0	3.5	3.5	3.67	2.16
C	3.4	4.2	3.9	4.2	3.92	2.31	2.0	2.7	2.6	2.43	1.43	3.5	3.2	3.5	3.40	2.00
D	3.4	3.9	3.9	4.0	3.80	2.24	2.8	3.4	2.9	3.03	1.78	4.0	3.5	4.0	3.83	2.25
E	3.4	4.0	4.0	4.2	3.90	2.29	3.0	3.3	2.6	2.97	1.74	4.5	3.5	3.5	3.83	2.25
Avg. Mils	3.40	3.82	3.84	4.04	3.78		2.68	3.28	2.88	2.95		4.00	3.44	3.60	3.68	
Avg.OZ/SF	2.00	2.25	2.26	2.38		2.22	1.58	1.93	1.69		1.73	2.35	2.02	2.12		2.16
1-2A	3.2	3.7	3.4	4.0	3.58	2.10	3.0	4.3	2.2	3.17	1.86	4.0	3.5	4.0	3.83	2.25
B	3.4	3.9	3.5	4.2	3.75	2.21	2.4	2.3	2.4	2.37	1.39	3.5	3.3	3.5	3.43	2.02
C	3.4	3.9	3.9	3.8	3.75	2.21	1.9	2.7	4.1	2.90	1.71	4.5	3.7	4.0	4.07	2.39
D	4.0	INF	4.7	5.0	(4.57)	(2.69)	5.1	4.2	3.6	4.30	2.53	5.0	4.8	5.0	4.93	2.90
E	4.4	INF	INF	INF	(4.40)	(2.58)	4.5	4.3	4.3	4.37	2.57	5.5	4.5	5.0	5.00	2.94
Avg. Mils	3.68	(3.83)	(3.88)	(4.25)	(3.91)		3.38	3.56	3.32	3.42		4.50	3.96	4.30	4.25	
Avg.OZ/SF	2.16	(2.25)	(2.28)	(2.50)		(2.30)	1.99	2.09	1.95		2.01	2.65	2.33	2.53		2.50
1-3A	4.2	INF	5.0	INF	(4.60)	(2.70)	4.0	4.8	4.0	4.27	2.51	5.0	4.5	5.0	4.83	2.84
B	4.0	INF	4.9	5.0	(4.63)	(2.72)	5.0	4.1	2.7	3.93	2.31	4.5	4.5	5.0	4.67	2.74
C	4.2	INF	INF	INF	(4.20)	(2.47)	4.5	5.1	4.7	4.77	2.80	5.5	5.0	5.5	5.33	3.14
D	3.8	INF	4.4	INF	(4.10)	(2.41)	4.2	4.7	4.5	4.47	2.63	6.0	5.0	5.0	5.33	3.14
E	4.0	INF	5.0	INF	(4.50)	(2.64)	3.6	4.4	3.9	3.97	2.33	5.5	5.2	5.5	5.40	3.18
Avg. Mils	4.04	-	(4.82)	(5.00)	(4.64)		4.26	4.62	3.96	4.28		5.30	4.84	5.20	5.11	
Avg.OZ/SF	2.37	-	(2.83)	(2.94)		(2.71)	2.51	2.72	2.33		2.52	3.12	2.85	3.06		3.01
1-4A	5.0	INF	INF	INF	(5.00)	(2.94)	5.0	4.7	5.0	4.90	2.88	6.0	5.0	5.5	5.50	3.24
B	4.8	INF	INF	INF	(4.80)	(2.82)	5.0	4.8	4.8	4.87	2.86	7.0	5.5	6.0	6.17	3.63
C	4.8	INF	INF	INF	(4.80)	(2.82)	5.0	4.4	4.6	4.67	2.74	5.0	4.7	5.5	5.07	2.98
D	4.8	INF	INF	INF	(4.80)	(2.82)	5.1	5.9	5.0	5.33	3.14	5.0	5.5	5.0	5.17	3.04
E	4.4	INF	INF	INF	(4.40)	(2.58)	5.0	5.5	4.0	4.83	2.84	5.5	4.8	5.0	5.10	3.00
Avg. Mils	4.76	-	-	-	(4.76)		5.02	5.06	4.68	4.92		5.70	5.10	5.40	5.40	
Avg.OZ/SF	2.80	-	-	-		(2.80)	2.95	2.98	2.75		2.89	3.35	3.00	3.18		3.18

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR I-4	OPTR I-1	OPTR E-3	OPTR I-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
1-5A	4.8	INF	INF	INF	(4.80)	(2.82)	5.0	5.3	5.4	5.23	3.08	6.5	5.0	5.5	5.67	3.33
B	4.6	INF	4.9	INF	(4.75)	(2.79)	4.0	6.3	4.3	4.87	2.86	5.0	4.8	5.0	4.93	2.90
C	4.4	INF	4.9	5.0	(4.77)	(2.80)	4.2	4.5	3.7	4.12	2.43	7.0	5.0	6.0	6.00	3.53
D	5.0	INF	INF	INF	(5.00)	(2.94)	4.9	5.5	4.9	5.10	3.00	6.0	4.5	5.0	5.17	3.04
E	3.1	3.4	3.8	4.0	3.58	2.10	3.0	4.5	3.9	3.80	2.24	4.5	3.5	4.0	4.00	2.35
Avg. Mils	4.38	(3.40)	(4.53)	(4.50)	(4.20)		4.22	5.22	4.44	4.63		5.80	4.56	5.10	5.15	
Avg.OZ/SF	2.58	(2.00)	(2.67)	(2.65)		(2.48)	2.48	3.07	2.61		2.72	3.41	2.68	3.00		3.03
2-1A	3.5	4.0	4.2	4.4	4.02	2.37	2.9	3.9	3.6	3.47	2.04	5.5	4.0	4.5	4.67	2.74
B	4.0	3.7	3.7	4.2	3.90	2.29	3.2	2.8	4.5	3.50	2.06	5.0	3.8	4.0	4.27	2.51
C	4.0	4.0	3.9	4.6	4.12	2.43	3.1	3.3	4.8	3.73	2.20	4.5	4.0	4.5	4.33	2.55
D	4.2	4.5	4.2	4.8	4.42	2.60	3.4	4.2	4.5	4.03	2.37	5.0	4.5	4.5	4.67	2.74
E	4.2	4.1	4.2	4.8	4.32	2.54	3.4	3.7	5.1	4.07	2.39	5.0	4.0	4.5	4.50	2.65
Avg. Mils	3.98	4.06	4.04	4.56	4.16		3.20	3.58	4.50	3.76		5.00	4.06	4.40	4.49	
Avg.OZ/SF	2.34	2.39	2.38	2.68		2.45	1.88	2.11	2.65		2.21	2.94	2.39	2.59		2.64
2-2A	3.8	3.7	3.8	4.6	3.98	2.34	3.4	3.4	4.6	3.80	2.24	4.5	4.0	4.0	4.17	2.45
B	3.6	3.6	3.7	4.4	3.82	2.25	3.0	3.5	4.1	3.53	2.08	4.5	3.5	4.0	4.00	2.35
C	3.6	4.0	3.8	4.2	3.90	2.29	2.9	3.6	4.0	3.50	2.06	5.0	4.0	4.0	4.33	2.55
D	3.8	3.8	3.8	4.4	3.95	2.32	2.9	3.1	4.1	3.37	1.98	5.0	3.5	4.0	4.17	2.45
E	4.0	4.2	4.1	4.8	4.28	2.51	3.1	4.3	4.8	4.07	2.39	5.5	4.0	4.0	4.50	2.65
Avg. Mils	3.76	3.86	3.84	4.48	3.98		3.06	3.58	4.32	3.65		4.90	3.80	4.00	4.23	
Avg.OZ/SF	2.21	2.27	2.26	2.64		2.34	1.80	2.11	2.54		2.15	2.88	2.24	2.35		2.49
2-3A	4.0	4.3	3.9	4.6	4.20	2.47	2.9	3.5	3.6	3.33	1.96	5.0	3.5	3.5	4.00	2.35
B	3.6	3.5	3.7	4.0	3.70	2.18	2.7	3.0	2.7	2.80	1.65	4.0	3.5	4.0	3.83	2.25
C	4.2	4.3	4.3	5.0	4.45	2.62	3.9	4.3	3.2	3.80	2.24	5.0	4.0	4.0	4.33	2.55
D	4.0	3.8	4.0	4.8	4.15	2.44	3.4	3.7	3.4	3.50	2.06	4.5	4.0	4.0	4.17	2.45
E	4.2	4.0	4.2	4.6	4.25	2.50	3.1	3.3	3.9	3.43	2.02	5.0	4.0	4.5	4.50	2.65
Avg. Mils	4.00	3.98	4.02	4.60	4.15		3.20	3.56	3.36	3.37		4.70	3.80	4.00	4.17	
Avg.OZ/SF	2.35	2.34	2.36	2.71		2.44	1.88	2.09	1.98		1.98	2.76	2.24	2.35		2.45

TABLE II
MAGNETIC GAGE MEASUREMENTS

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER						MIKROTEST					TINSLEY				
	OPTR I-4	OPTR I-1	OPTR E-3	OPTR I-3	AVG MILS	AVG OZ/SF	OPTR E-3	OPTR E-2	OPTR I-1	AVG MILS	AVG OZ/SF	OPTR G-1	OPTR E-3	OPTR C-1	AVG MILS	AVG OZ/SF
2-4A	3.6	3.7	3.9	4.4	3.90	2.29	2.3	2.5	2.9	2.57	1.51	4.0	3.5	4.0	3.83	2.25
B	3.8	3.9	3.9	4.4	4.00	2.35	3.1	4.0	3.5	3.53	2.08	4.5	4.0	4.5	4.33	2.55
C	3.8	4.0	3.6	4.6	4.00	2.35	2.4	3.4	2.7	2.83	1.67	4.0	3.5	3.5	3.67	2.16
D	4.0	4.1	4.1	4.8	4.25	2.50	3.4	3.8	4.2	3.80	2.24	5.0	3.8	4.0	4.27	2.51
E	4.0	3.8	3.9	4.4	4.02	2.37	2.5	3.3	4.5	3.43	2.02	5.0	4.0	4.0	4.33	2.55
Avg. Mils	3.84	3.90	3.88	4.52	4.04		2.74	3.40	3.56	3.23		4.50	3.76	4.00	4.09	
Avg.OZ/SF	2.26	2.29	2.28	2.66		2.37	1.61	2.00	2.09		1.90	2.65	2.21	2.35		2.40
2-5A	3.8	3.7	3.8	4.4	3.92	2.31	2.5	3.1	3.8	3.13	1.84	4.5	3.8	3.5	3.93	2.31
B	3.6	3.5	3.8	4.2	3.78	2.22	3.2	3.0	3.6	3.27	1.92	4.0	3.7	4.0	3.90	2.29
C	3.6	3.7	4.0	4.4	3.92	2.31	3.1	3.5	3.3	3.30	1.94	4.5	3.5	4.0	4.00	2.35
D	4.2	4.2	4.6	4.6	4.40	2.59	3.2	3.2	3.6	3.33	1.96	4.5	3.5	4.0	4.00	2.35
E	3.8	3.5	3.5	4.0	3.70	2.18	2.3	2.3	2.2	2.27	1.33	4.5	3.5	3.5	3.83	2.25
Avg. Mils	3.80	3.72	3.94	4.32	3.94		2.86	3.02	3.30	3.06		4.40	3.60	3.80	3.93	
Avg.OZ/SF	2.24	2.19	2.32	2.54		2.32	1.68	1.78	1.94		1.80	2.59	2.12	2.24		2.32

TABLE II-A

Microtest Readings - Uncorrected
(Galvanized Samples)

TABLE II-A
MIKROTEST READINGS - UNCORRECTED

PROJECT: 3-08-69-014 PAGE 1

SAMPLE & LOCATION	OPERATOR: I-2			OPERATOR: E-2			OPERATOR: E-3		
	MILS	OZ/SF	% ERROR	MILS	OZ/SF	% ERROR	MILS	OZ/SF	% ERROR
10-1	3.18	1.87	- 30.5	3.76	2.21	- 17.8	3.40	2.00	- 25.6
2	3.98	2.34	- 28.4	4.86	2.86	- 12.5	3.36	1.98	- 39.4
3	5.40	3.18	+ 6.0	5.20	3.06	+ 2.0	4.90	2.88	- 4.0
4	5.18	3.05	+ 3.7	5.02	2.95	+ 0.3	4.74	2.79	- 5.1
5	4.90	2.88	+ 3.6	3.98	2.34	- 15.8	4.54	2.67	- 4.0
11-1	7.90	4.65	+ 8.4	6.72	3.95	- 7.9	7.10	4.18	- 2.6
2	8.30	4.88	- 3.9	7.70	4.53	- 10.8	8.10	4.76	- 6.3
3	8.20	4.82	- 3.6	8.22	4.84	- 3.2	8.00	4.71	- 5.8
4	6.80	4.00	- 13.2	6.38	3.75	- 18.6	6.70	3.94	- 14.5
5	7.60	4.47	- 14.8	7.96	4.68	- 10.8	8.28	4.87	- 7.2
12-1	3.90	2.29	- 11.9	3.80	2.24	- 13.8	3.76	2.21	- 15.00
2	3.90	2.29	+ 17.4	3.78	2.22	+ 13.8	3.70	2.18	+ 11.8
3	4.88	2.87	+ 44.2	5.10	3.00	+ 50.8	4.72	2.78	+ 39.7
4	5.06	2.98	+ 56.8	4.00	2.35	+ 23.7	3.98	2.34	+ 23.2
5	6.50	3.82	+ 10.1	5.80	3.41	- 1.7	5.62	3.31	- 4.6
13-1	3.70	2.18	- 12.8	3.30	1.94	- 22.4	3.56	2.09	- 16.4
2	4.30	2.53	+ 4.5	3.76	2.21	- 8.7	3.50	2.06	- 14.9
3	4.40	2.59	+ 7.5	4.60	2.71	+ 12.4	3.62	2.13	- 11.6
4	4.30	2.53	- 1.9	3.74	2.20	- 14.7	3.06	1.80	- 30.2
5	3.42	2.01	- 14.8	3.12	1.84	- 22.0	3.02	1.78	- 24.6
14-1	4.40	2.59	+ 10.2	3.42	2.01	- 14.5	3.22	1.89	- 19.6
2	4.70	2.76	+ 23.2	3.04	1.79	- 20.1	2.90	1.71	- 23.7
3	3.80	2.24	- 13.2	3.14	1.85	- 28.3	3.06	1.80	- 30.2
4	4.10	2.41	+ 9.0	3.40	2.00	- 9.5	3.04	1.79	- 19.0
5	3.44	2.02	- 12.6	2.96	1.74	- 24.7	2.90	1.71	- 26.0
15-1	3.74	2.20	- 17.9	3.48	2.05	- 23.5	3.54	2.08	- 22.4
2	5.20	3.06	- 10.8	5.34	3.14	- 8.4	5.46	3.21	- 6.4
3	5.30	3.12	+ 0.3	5.02	2.95	- 5.1	5.24	3.08	- 1.0
4	3.80	2.24	- 18.5	3.62	2.13	- 22.5	4.02	2.36	- 14.2
5	4.10	2.41	- 0.8	3.40	2.00	- 17.7	3.86	2.27	- 6.6
	OPERATOR: E-2			OPERATOR: I-2			OPERATOR: I-1		
20-1	4.02	2.36	- 1.2	4.10	2.41	+ 0.8	3.88	2.28	- 4.6
2	3.54	2.08	- 10.3	3.72	2.19	- 5.6	3.46	2.04	- 12.1
3	3.34	1.96	- 18.3	4.30	2.53	+ 5.4	3.62	2.13	- 11.2
4	3.10	1.82	- 22.9	3.50	2.06	- 12.7	3.46	2.04	- 13.6
5	3.46	2.04	- 15.0	3.72	2.19	- 8.8	3.72	2.19	- 8.8
21-1	11.24	6.61	+ 6.1	12.00	7.06	+ 13.3	12.80	7.53	+ 20.9
2	10.26	6.04	+ 8.4	11.60	6.82	+ 22.4	10.94	6.44	+ 15.6
3	9.46	5.56	+ 1.4	9.40	5.53	+ 0.9	9.90	5.82	+ 6.2
4	7.84	4.61	- 1.9	7.70	4.53	- 3.6	9.06	5.33	+ 13.4
5	11.34	6.67	+ 31.6	11.00	6.47	+ 27.6	11.76	6.92	+ 36.5

(Continued)

TABLE II-A
MIKROTEST READINGS - UNCORRECTED

PROJECT: 3-08-69-014 PAGE 2

SAMPLE & LOCATION	OPERATOR: E-2			OPERATOR: I-2			OPERATOR: I-1		
	MILS	OZ/SF	% ERROR	MILS	OZ/SF	% ERROR	MILS	OZ/SF	% ERROR
22-1	2.76	1.62	- 21.0	2.94	1.73	- 15.6	3.38	1.99	- 2.9
2	3.00	1.76	- 14.6	3.26	1.92	- 6.8	3.52	2.07	+ 0.5
3	2.94	1.73	- 17.2	3.10	1.82	- 12.9	3.18	1.87	- 10.5
4	3.54	2.08	- 10.3	3.72	2.19	- 5.6	3.80	2.24	- 3.4
5	2.58	1.52	- 26.2	3.00	1.76	- 14.6	2.92	1.72	- 16.5
23-1	4.80	2.82	- 10.5	4.76	2.80	- 11.1	5.40	3.18	+ 1.0
2	3.96	2.33	- 24.1	4.20	2.47	- 19.5	4.26	2.51	- 18.2
3	5.10	3.00	- 15.2	6.10	3.59	+ 1.4	5.86	3.45	- 2.5
4	4.04	2.38	- 19.9	4.36	2.56	- 13.8	4.50	2.65	- 10.8
5	5.60	3.29	+ 1.8	5.06	2.98	- 7.7	5.20	3.06	- 5.3
24-1	4.02	2.36	- 14.5	4.30	2.53	- 8.3	4.12	2.42	- 12.3
2	4.62	2.72	- 12.5	5.34	3.14	+ 1.0	4.62	2.72	- 12.5
3	5.82	3.42	+ 7.9	5.44	3.20	+ 0.9	5.06	2.98	- 6.0
4	5.34	3.14	- 4.0	5.10	2.94	- 10.1	5.76	3.39	+ 3.7
5	4.08	2.40	- 5.9	4.40	2.59	+ 1.6	4.36	2.56	+ 0.4
25-1	4.24	2.49	- 8.1	4.20	2.47	- 8.8	5.12	3.01	+ 11.1
2	4.54	2.67	- 17.6	4.30	2.53	- 21.9	6.00	3.53	+ 9.0
3	4.84	2.85	- 10.9	4.60	2.71	- 15.3	5.00	2.94	- 8.1
4	4.14	2.44	- 10.6	4.82	2.84	+ 4.0	5.52	3.25	+ 19.0
5	4.86	2.86	+ 10.8	4.36	2.56	- 0.8	5.62	3.31	+ 28.3
26-1	5.60	3.29	+ 0.6	4.60	2.71	- 17.1	4.88	2.87	- 12.2
2	4.36	2.56	- 19.0	4.30	2.53	- 19.9	4.26	2.51	- 20.6
3	4.40	2.59	- 19.1	4.00	2.35	- 26.6	3.90	2.29	- 28.4
4	5.32	3.13	- 21.9	4.50	2.65	- 33.9	4.72	2.78	- 30.7
5	5.14	3.02	- 8.5	4.90	2.88	- 12.7	4.56	2.68	- 18.8
	OPERATOR: E-1			OPERATOR: I-1			OPERATOR: E-3		
36-1F	4.34	2.55	+ 24.4	3.48	2.05	0.0	3.50	2.06	+ 0.5
2F	3.98	2.34		3.62	2.13		3.96	2.33	
3F	4.26	2.51		4.68	2.75		3.88	2.28	
4F	4.60	2.71		5.44	3.20		3.66	2.15	
5F	4.86	2.86	+ 21.2	5.36	3.15	+ 33.5	4.00	2.35	- 0.4
1W	4.98	2.93		4.62	2.72		4.92	2.89	
2W	5.38	3.16		4.40	2.59		3.96	2.33	
3W	5.46	3.21	- 13.7	5.22	3.07	- 17.5	5.08	2.99	- 19.6
4W	4.18	2.46		5.02	2.95		4.30	2.53	
5W	5.00	2.94	+ 21.0	4.08	2.40	- 1.2	3.74	2.20	- 9.5
37-1F	3.80	2.24		3.54	2.08		3.54	2.08	
2F	3.72	2.19	+ 7.4	3.72	2.19	+ 7.4	3.32	1.95	- 4.4
3F	3.46	2.04		3.60	2.12		3.18	1.87	
4F	3.94	2.32	+ 5.9	4.00	2.35	+ 7.3	4.04	2.38	+ 8.7
5F	3.58	2.11		4.40	2.59		3.70	2.18	

TABLE II-A
MIKROTEST READINGS - UNCORRECTED

PROJECT: 3-08-69-014

SAMPLE & LOCATION	OPERATOR: E-1			OPERATOR: I-1			OPERATOR: E-3		
	MILS	OZ/SF	% ERROR	MILS	OZ/SF	% ERROR	MILS	OZ/SF	% ERROR
37-1W	4.36	2.56		4.54	2.67		3.68	2.16	
2W	3.18	1.87	- 14.6	2.98	1.75	- 20.1	3.00	1.76	- 19.6
3W	3.44	2.02		3.36	1.98		3.22	1.89	
4W	3.90	2.29	+ 3.6	4.02	2.36	+ 6.8	3.50	2.06	- 6.8
5W	3.58	2.11		3.14	1.85		3.58	2.11	
38-1F	3.90	2.29	- 4.6	4.38	2.58	+ 7.5	4.84	2.85	+ 18.8
2F	3.40	2.00	- 4.3	3.60	2.12	+ 1.4	3.78	2.22	+ 6.2
3F	3.50	2.06		4.16	2.45		4.36	2.56	
4F	4.36	2.56		3.68	2.16		3.88	2.28	
5F	3.62	2.13		4.24	2.49		3.82	2.25	
1W	3.26	1.92	- 4.5	3.48	2.05	+ 2.0	3.72	2.19	+ 9.0
2W	3.16	1.86	- 9.3	3.30	1.94	- 5.4	3.34	1.96	- 4.4
3W	4.38	2.58		3.26	1.92		3.62	2.13	
4W	3.62	2.13		3.28	1.93		3.16	1.86	
5W	3.84	2.26		3.60	2.12		3.60	2.12	
	OPERATOR: G-1			OPERATOR: E-1			OPERATOR: E-3		
44-1F	11.10	6.53	- 28.3	11.70	6.88	- 24.5	11.38	6.69	- 26.6
2F	10.10	5.94		10.20	6.00		10.70	6.29	
3F	9.30	5.47	- 30.7	9.80	5.76	- 27.0	9.60	5.65	- 28.4
4F	9.70	5.71		10.44	6.14		10.50	6.18	
5F	9.60	5.65		10.24	6.02		10.40	6.12	
1W	11.00	6.47		11.50	6.76		11.30	6.65	
2W	11.20	6.59		11.60	6.82		11.60	6.82	
3W	10.20	6.00	- 5.1	10.80	6.35	+ 0.5	10.80	6.35	+ 0.5
4W	10.80	6.35		11.80	6.94		11.40	6.71	
5W	11.60	6.82	- 16.6	12.30	7.24	- 11.5	12.00	7.06	- 13.7
45-1F	9.00	5.29	+ 2.3	8.90	5.23	+ 1.2	9.10	5.35	+ 3.5
2F	8.30	4.88		8.40	4.94		8.70	5.12	
3F	7.90	4.65		7.94	4.67		8.00	4.71	
4F	7.70	4.53		7.86	4.62		7.70	4.53	
5F	7.70	4.53		7.40	4.35		7.76	4.56	
1W	10.20	6.00	+ 6.6	10.00	5.88	+ 4.4	10.30	6.06	+ 7.6
2W	9.80	5.76		10.04	5.91		10.10	5.94	
3W	9.20	5.41		9.24	5.44		9.40	5.53	
4W	8.70	5.12		8.68	5.11		8.80	5.18	
5W	8.20	4.82	- 22.2	8.64	5.08	- 18.1	8.60	5.06	- 18.4
46-1F	9.50	5.59	+ 1.6	8.82	5.19	- 5.6	9.70	5.71	+ 3.8
2F	9.10	5.35		9.04	5.32		9.00	5.29	
3F	9.10	5.35		9.14	5.38		8.60	5.06	
4F	8.30	4.88		8.16	4.80		7.90	4.65	
5F	8.70	5.12	+ 14.0	7.66	4.51	+ 0.4	7.60	4.47	- 0.4
1W	10.10	5.94		9.74	5.73		9.80	5.76	
2W	10.50	6.18	+ 9.6	10.08	5.93	+ 5.1	9.60	5.65	+ 0.2
3W	9.70	5.71		9.66	5.68		9.60	5.65	
4W	9.20	5.41		8.66	5.09		8.40	4.94	
5W	8.30	4.88	- 6.0	8.46	4.98	- 4.0	8.10	4.76	- 8.3

TABLE II-A
MIKROTEST READINGS - UNCORRECTED

PROJECT: 3-08-69-014 PAGE 4

SAMPLE & LOCATION	OPERATOR: E-1			OPERATOR: I-1			OPERATOR: E-3		
	MILS	OZ/SF	% ERROR	MILS	OZ/SF	% ERROR	MILS	OZ/SF	% ERROR
47-1F	8.30	4.88		9.00	5.29		8.80	5.18	
2F	8.80	5.18	- 3.5	9.14	5.38	+ 0.2	9.70	5.71	+ 6.3
3F	8.30	4.88		9.10	5.35		8.60	5.06	
4F	8.90	5.24		8.80	5.18		8.50	5.00	
5F	8.20	4.82	- 9.2	8.62	5.07	- 4.5	8.40	4.94	- 7.0
1W	9.20	5.41		9.34	5.49		9.80	5.76	
2W	9.60	5.65	- 3.4	10.10	5.94	+ 1.5	10.00	5.88	+ 0.5
3W	8.40	4.94	- 9.0	8.60	5.06	- 6.8	9.00	5.29	- 2.6
4W	9.10	5.35		9.96	5.86		9.60	5.65	
5W	9.10	5.35		9.36	5.51		9.40	5.53	
48-1F	7.90	4.65		8.64	5.08		8.00	4.71	
2F	7.90	4.65		8.54	5.02		8.60	5.06	
3F	8.20	4.82	- 4.4	8.44	4.96	- 1.6	8.60	5.06	+ 0.4
4F	7.60	4.47	- 7.3	8.30	4.88	+ 1.2	8.20	4.82	0.0
5F	7.60	4.47		8.36	4.92		8.60	5.06	
1W	10.90	6.41	- 5.6	11.62	6.84	+ 0.7	11.80	6.94	+ 2.2
2W	10.30	6.06		11.00	6.47		11.00	6.47	
3W	10.20	6.00		11.14	6.55		11.00	6.47	
4W	9.30	5.47		10.14	5.96		9.80	5.76	
5W	9.20	5.41	- 13.3	10.26	6.04	- 3.2	9.70	5.71	- 8.5
	OPERATOR: E-3			OPERATOR: E-2			OPERATOR: I-1		
1-1	3.68	2.16	- 24.7	3.78	2.22	- 22.6	3.88	2.28	- 20.6
2	4.38	2.58	+ 43.3	4.06	2.39	+ 32.8	4.32	2.54	+ 41.1
3	5.26	3.09	+ 19.3	5.12	3.01	+ 16.2	4.96	2.92	+ 12.7
4	6.02	3.54	+ 28.3	5.56	3.27	+ 18.5	5.68	3.34	+ 21.0
5	5.22	3.07	+129.1	5.72	3.36	+150.7	5.44	3.20	+138.8
2-1	4.30	2.53	- 8.3	4.28	2.52	- 8.7	5.50	3.24	+ 17.4
2	4.16	2.45	- 4.7	4.28	2.52	- 1.9	5.32	3.13	+ 21.8
3	4.30	2.53	- 5.2	4.26	2.51	- 6.0	4.36	2.56	- 4.1
4	3.84	2.26	- 9.2	4.10	2.41	- 3.2	4.56	2.68	+ 7.6
5	3.96	2.33	- 6.0	3.72	2.19	- 11.7	4.30	2.53	+ 2.0

TABLE III

Operator - Gages, Percent Error
(Galvanized Samples)

TABLE III
OPERATOR - GAGES
PERCENT ERROR

PROJECT: 3-08-69-014

METAL THICKNESS	SAMPLE NO.	STRIP TEST	ELCOMETER				MIKROTEST						TINSLEY		
							CORRECTED			UNCORRECTED					
			C-2	I-3	E-3	I-1	I-2	E-2	E-3	I-2	E-2	E-3	E-3	G-1	E-2
	10-1	2.69	-15.2	-14.1	-14.9	-17.8	-52.4	-61.3	-47.6	-30.5	-17.8	-25.6	-14.9	- 8.2	- 8.2
	2*	3.27	-25.1	-28.1	-30.6	-31.5	-46.5	-48.6	-57.5	-28.4	-12.5	-39.4	-27.2	-15.6	-31.5
1/4"	3	3.00	-11.7	-17.7	(-21.7)	(-20.0)	-13.7	-37.3	-23.7	+ 6.0	+ 2.0	- 4.0	-15.0	- 4.0	-13.7
	4	2.94	(-11.9)	-10.2	(-10.9)	(-22.1)	-16.3	-39.4	-25.2	+ 3.7	+ 0.3	- 5.1	- 7.5	- 2.0	- 9.9
	5	2.78	(-11.2)	-14.4	(-13.3)	(-21.2)	-17.6	-58.3	-25.2	+ 3.6	-15.8	- 4.0	-11.2	- 6.8	- 6.8
	11-1	4.29	-	-	-	-	-19.1	-21.7	-23.3	+ 8.4	- 7.9	- 2.6	- 9.8	- 8.2	-11.0
	2	5.08	-	-	-	-	-27.0	-22.4	-23.6	- 3.9	-10.8	- 6.3	- 7.3	- 2.8	-10.8
3/8"	3	5.00	-	-	-	-	-27.0	-15.0	-23.6	- 3.6	- 3.2	- 5.8	- 8.2	- 5.8	- 3.6
	4	4.61	-	-	-	-	-38.8	-31.4	-33.6	-13.2	-18.6	-14.5	-18.9	- 9.3	- 8.2
	5	5.25	-	-	-	-	-37.3	-19.8	-24.0	-14.8	-10.8	- 7.2	-11.4	- 8.2	-10.3
	12-1	2.60	- 9.6	- 3.1	- 7.3	- 3.5	-34.2	-36.5	-51.2	-11.9	-13.8	-15.0	-13.8	- 5.0	+13.1
	2	1.95	+35.9	+46.2	(+41.5)	(+47.7)	-12.3	-15.9	-36.4	+17.4	+13.8	+11.8	+19.5	+23.6	+50.8
1/2"	3*	1.99	(+27.1)	+43.2	(+32.2)	(+36.2)	+14.6	+21.1	- 7.5	+44.2	+50.8	+39.7	+40.7	+44.7	+41.7
	4*	1.90	+32.6	+38.9	+35.8	+44.2	+25.8	- 7.4	-26.3	+56.8	+23.7	+23.2	+22.1	+48.4	+48.4
	5	3.47	-	-	-	-	- 6.6	-18.7	-32.0	+10.1	- 1.7	- 4.6	- 6.6	- 3.4	+ 8.4
	13-1	2.50	-20.0	- 0.4	-11.6	- 2.0	-60.0	-46.0	-54.0	-12.8	-22.4	-16.4	-23.2	- 6.0	- 6.0
	2	2.42	-15.3	- 0.8	- 7.4	+ 1.6	-44.2	-33.1	-53.7	+ 4.5	- 8.7	-14.9	-10.0	+ 2.1	- 2.9
5/8"	3	2.41	-19.1	- 2.5	-14.5	- 4.1	-41.5	-12.0	-50.6	+ 7.5	+12.4	-11.6	-15.4	0.0	-14.5
	4	2.58	-27.9	- 9.7	-26.0	-11.2	-47.7	-37.6	-66.7	- 1.9	-14.7	-30.2	-29.4	-24.8	-27.1
	5	2.36	-20.3	- 0.4	-10.2	- 3.0	-64.4	-47.0	-64.4	-14.8	-22.0	-24.6	-17.8	-10.2	-12.7
	14-1	2.35	-18.3	- 1.7	-14.0	+ 0.4	-14.9	-34.5	-51.9	+10.2	-14.5	-19.6	-13.2	-17.4	-12.3
	2	2.24	-28.1	-12.9	-20.1	- 7.6	- 2.7	-41.1	-58.0	+23.2	-20.1	-23.7	-25.9	-18.8	-16.1
3/4"	3	2.58	-29.8	-10.5	-20.5	-14.7	-36.0	-46.5	-59.7	-13.2	-28.3	-30.2	-22.5	- 8.9	-20.2
	4	2.21	-11.3	- 3.2	- 4.1	+ 3.6	-17.6	-30.8	-52.5	+ 9.0	- 9.5	-19.0	-12.2	+ 9.0	- 6.8
	5	2.31	-24.2	- 6.5	-13.0	- 2.2	-37.7	-45.0	-59.7	-12.6	-24.7	-26.0	-19.5	- 0.9	-16.0

TABLE III
OPERATOR - GAGES
PERCENT ERROR

PROJECT: 3-08-69-014

METAL THICK-NESS	SAMPLE NO.	STRIP TEST	ELCOMETER				MIKROTEST CORRECTED			MIKROTEST UNCORRECTED			TINSLEY		
			C-2	I-3	E-3	I-1	I-2	E-2	E-3	I-2	E-2	E-3	E-3	G-1	E-2
	15-1	2.68	-20.5	-15.7	-17.2	-14.6	-61.9	-41.0	-55.2	-17.9	-23.5	-22.4	-19.8	- 1.1	-23.1
	2	3.43	(-28.0)	(-22.7)	(-21.6)	(-24.5)	-45.2	-22.2	-32.1	-10.8	- 8.4	- 6.4	-14.3	- 9.0	-12.5
1"	3	3.11	(-13.5)	(- 9.3)	(-10.3)	-	-37.6	-20.2	-29.3	+ 0.3	- 5.1	- 1.0	- 1.6	+ 4.2	- 3.5
	4	2.75	-17.1	-10.9	-15.6	(- 8.0)	-61.4	-39.6	-46.2	-18.5	-22.5	-14.2	-18.2	- 5.8	-18.5
	5	2.43	- 8.2	+ 1.6	-10.3	- 0.4	-49.0	-37.0	-42.8	- 0.8	-17.7	- 6.6	- 6.6	- 0.8	- 3.3
			E-3	I-1	C-1		E-2	I-2	I-1	E-2	I-2	I-1	G-1	E-3	C-1
	20-1	2.39	- 3.3	- 7.9	- 8.4		-50.2	-48.1	-31.4	- 1.2	+ 0.8	- 4.6	+18.0	-13.0	- 6.3
	2	2.32	- 8.6	- 5.6	- 4.7		-60.8	-56.5	-40.1	-10.3	- 5.6	-12.1	+11.6	-11.2	- 3.4
1/4"	3	2.40	- 7.5	-13.3	- 6.2		-67.1	-43.8	-38.3	-18.3	+ 5.4	-11.2	- 4.6	-15.0	- 9.2
	4	2.36	-11.4	-14.4	- 6.8		-72.4	-62.7	-41.1	-22.9	-12.7	-13.6	- 0.4	-16.1	-15.2
	5	2.40	-10.8	-10.8	- 5.0		-64.2	-57.9	-35.8	-15.0	- 8.8	- 8.8	+ 7.9	-11.7	- 9.2
	21-1	6.23	-	-	-		-12.7	-15.1	+ 9.5	+ 6.1	+13.3	+20.9	+22.8	+18.0	+ 7.7
	2	5.57	-	-	-		-12.7	- 9.2	+ 2.9	+ 8.4	+22.4	+15.6	+19.4	+ 3.4	- 0.7
3/8"	3	5.48	-	-	-		-19.9	-31.4	- 6.6	+ 1.5	+ 0.9	+ 6.2	+15.9	+ 3.1	- 1.3
	4	4.70	-	-	-		-26.8	-41.3	- 1.7	- 1.9	- 3.6	+13.4	+ 5.1	-12.3	- 8.7
	5*	5.07	-	-	-		+ 8.3	- 7.1	+22.5	+31.6	+27.6	+36.5	+46.2	+30.0	+30.0
	22-1	2.05	- 7.8	- 6.3	- 8.8		-63.9	-44.4	-34.6	-21.0	-15.6	- 2.9	+ 3.4	- 7.8	- 5.4
	2	2.06	- 6.3	- 9.7	-10.7		-57.3	-35.4	-31.1	-14.6	- 6.8	+ 0.5	+ 2.9	- 9.7	- 2.9
7/16"	3	2.09	- 7.6	- 8.1	-10.0		-59.3	-40.7	-41.6	-17.2	-12.9	-10.5	+ 7.2	- 8.1	- 4.3
	4	2.32	- 4.7	- 8.2	-11.6		-48.3	-31.0	-31.5	-10.3	- 5.6	- 3.4	- 3.4	- 8.2	- 3.4
	5	2.06	- 9.2	-13.6	-12.1		-68.9	-42.7	-46.1	-26.2	-14.6	-16.5	+11.2	-10.7	- 8.7
	23-1	3.15	(-19.0)	(-19.0)	(-12.4)		-32.7	-39.0	-15.9	-10.5	-11.1	+ 1.0	+ 4.4	-14.0	-10.5
	2	3.07	-17.6	-15.0	-14.6		-47.2	-48.2	-35.5	-24.1	-19.5	-18.2	- 0.3	-21.5	-19.5
5/8"	3	3.54	-	-	-		-35.3	-23.4	-17.5	-15.2	+ 1.4	- 2.5	+ 7.9	-11.9	-10.2
	4	2.97	-17.2	-13.8	-16.2		-43.8	-43.4	-28.6	-19.9	-13.8	-10.8	+ 1.0	-14.8	-18.8
	5	3.23	(-18.0)	(-12.7)	(-16.1)		-19.8	-35.3	-21.7	+ 1.9	- 7.7	- 5.3	- 5.3	-12.7	- 9.0

TABLE III
OPERATOR - CAGES
PERCENT ERROR

PROJECT: 3-08-69-014

METAL THICKNESS	SAMPLE NO.	STRIP TEST	ELCOMETER			MIKROTEST						TINSLEY		
						CORRECTED			UNCORRECTED					
			E-3	I-1	C-1	E-2	I-2	I-1	E-2	I-2	I-1	G-1	E-3	C-1
	24-1	2.76	-12.3	-19.6	-15.2	-29.3	-40.2	-39.8	-14.5	- 8.3	-12.3	-13.4	-20.6	-18.8
	2	3.11	(-10.3)	(-12.9)	(-11.2)	-25.7	-27.3	-37.3	-12.5	+ 1.0	-12.5	- 9.3	- 9.3	-12.9
3/4"	3	3.17	(- 7.2)	(-22.1)	(- 7.2)	- 5.0	-26.8	-30.3	+ 7.9	+ 1.0	- 6.0	- 9.1	- 5.4	-12.9
	4	3.27	(-19.0)	(-22.6)	(-19.0)	-16.5	-37.0	-19.9	- 4.0	-10.1	+ 3.7	-13.8	-13.8	-19.0
	5	2.55	- 3.5	-11.4	- 7.8	-22.0	-32.9	-29.4	- 5.9	+ 1.6	+ 0.4	-12.2	-10.2	-12.2
	25-1	2.71	-	(-30.6)	(-32.8)	-29.5	-30.6	- 6.3	- 8.1	- 8.8	+11.1	- 9.6	- 8.8	-15.5
	2*	3.24	(-32.7)	(-43.8)	(-42.9)	-35.8	-40.1	- 5.6	-17.6	-21.9	+ 9.0	-23.8	-21.9	-25.6
7/8"	3*	3.20	(-28.4)	(-34.4)	(-30.6)	-30.2	-33.8	-22.8	-10.9	-15.3	- 8.1	-13.8	-22.8	-28.4
	4	2.73	(-11.0)	(-22.3)	(-28.9)	-32.2	-17.6	+ 1.8	-10.6	+ 4.0	+19.0	- 5.1	- 7.3	-22.3
	5	2.58	(-17.1)	(-20.2)	(-25.6)	-12.0	-23.2	-10.1	+10.8	- 0.8	+28.3	- 4.3	- 8.9	-15.5
	26-1	3.27	-15.6	(-16.2)	(-17.7)	-13.8	-53.2	-17.7	+ 0.6	-17.1	-12.2	-17.1	-28.1	-31.5
	2	3.16	-21.2	(-24.1)	-19.3	-33.9	-57.3	-26.3	-19.0	-19.9	-20.6	-12.6	-32.9	-32.9
1"	3	3.20	-20.9	-19.1	(-20.0)	-33.8	-63.1	-33.8	-19.1	-26.6	-28.4	-17.2	-31.9	-31.9
	4*	4.01	(-31.2)	(-26.7)	-	-33.7	-63.3	-35.2	-21.9	-33.9	-30.7	-29.7	-31.2	-42.9
	5	3.30	(-18.5)	(-19.7)	(-19.1)	-22.7	-48.2	-23.9	- 8.5	-12.7	-18.8	-14.5	-23.3	-32.1
			E-3	I-4	I-1	E-1	I-1	E-3	E-1	I-1	E-3	G-1	I-1	E-3
	36-1F	2.05	- 5.4	+11.2	- 4.4	-53.2	-80.5	-85.8	+24.4	+ 0.0	+ 0.5	- 2.4	+ 0.5	- 0.5
3/16'	3W*	3.72	-44.1	(-36.8)	-45.2	-53.2	-61.8	-67.2	-13.7	-17.5	-19.6	-32.0	-30.4	-26.6
	5F	2.36	-17.4	- 3.4	-21.2	-46.2	-36.0	-75.0	+21.2	+33.5	- 0.4	-12.7	- 3.0	+ 3.8
	5W	2.43	-23.9	-16.9	-30.4	-39.5	-69.1	-81.9	+21.0	- 1.2	- 9.5	-16.0	- 5.8	-12.3
7/16'	37-2F	2.04	- 2.4	- 2.0	-17.2	-35.8	-30.4	-61.8	+ 7.4	+ 7.4	- 4.4	- 2.4	+ 1.0	- 7.8
5/16'	2W*	2.19	-22.8	-23.7	-32.0	-41.6	-60.3	-46.1	-14.6	-20.1	-19.6	-16.9	-19.6	-20.5
7/16'	4F	2.19	- 6.4	+ 4.1	-11.4	-34.2	-27.4	-45.2	+ 5.9	+ 7.3	+ 8.7	- 0.4	- 0.4	+ 2.3
5/16'	4W	2.21	-11.3	(- 6.8)	-16.7	-22.6	-33.0	-33.5	+ 3.6	+ 6.8	- 6.8	- 2.7	- 1.4	- 9.0

TABLE III
OPERATOR - GAGES
PERCENT ERROR

PROJECT: 3-08-69-014

METAL THICK-NESS	SAMPLE NO.	STRIP TEST	ELCOMETER				MIKROTEST CORRECTED			MIKROTEST UNCORRECTED			TINSLEY		
			E-3	I-4	I-1		E-1	I-1	E-3	E-1	I-1	E-3	G-1	I-1	E-3
5/16"	38-1F	2.40	- 2.5	-10.8	- 2.1		-48.3	-29.6	- 5.8	- 4.6	+ 7.5	+18.8	+10.4	- 2.1	- 4.6
1/4"	1W	2.01	+ 5.5	+ 4.0	+ 3.5		-39.8	-27.4	-17.4	- 4.5	+ 2.0	+ 9.0	+16.9	+ 5.5	+ 3.0
5/16"	2F	2.09	- 1.4	+ 7.2	- 6.7		-55.0	-40.7	-21.5	- 4.3	+ 1.4	+ 6.2	+18.2	+15.3	0.0
1/4"	2W	2.05	- 3.4	- 4.9	- 2.4		-43.9	-34.1	-29.8	- 9.3	- 5.4	- 4.4	- 0.5	- 2.4	- 8.3
							G-1	E-1	E-3	G-1	E-1	E-3	E-3	E-4	G-1
5/16"	44-1F*	9.11	-	-	-		-41.3	-37.3	-39.4	-28.3	-24.5	-26.6	-34.8	-30.5	-32.8
5/16"	3F*	7.89	-	-	-		-45.6	-41.8	-43.3	-30.7	-27.0	-28.4	-32.2	-33.2	-35.9
3/16"	3W	6.32	-	-	-		-23.7	-18.0	-18.0	- 5.4	+ 0.5	+ 0.5	- 9.6	- 7.9	- 5.1
3/16"	5W	8.18	-	-	-		-30.9	-25.9	-28.1	-16.6	-11.5	-13.7	-18.7	-15.2	-16.6
	45-1F	5.17	-	-	-		-14.7	-20.3	-19.1	+ 2.3	+ 1.4	+ 3.5	- 7.9	- 6.2	- 2.1
1/4"	1W	5.63	-	-	-		- 3.9	-13.3	- 8.0	+ 6.6	+ 4.4	+ 7.6	- 1.8	- 1.8	+ 2.3
	5W*	6.20	-	-	-		-31.6	-34.2	-32.6	-22.2	-18.1	-18.4	-23.2	-17.4	-20.3
3/8"	46-1F	5.50	-	-	-		-19.8	-19.6	-17.6	+ 1.6	- 5.6	+ 3.8	-14.4	- 5.3	- 8.0
1/4"	2W	5.64	-	-	-		- 0.9	- 5.3	-20.7	+ 9.6	+ 5.1	+ 0.2	- 8.2	- 3.5	- 2.0
3/8"	5F	4.49	-	-	-		-12.2	-16.7	-26.7	+14.0	+ 0.4	- 0.4	- 8.2	-10.9	- 3.1
1/4"	5W	5.19	-	-	-		-17.3	-15.4	-30.8	- 6.0	- 4.0	- 8.3	-10.4	-15.0	-
7/16"	47-2F	5.37	-	-	-		- 9.1	-13.0	-15.6	- 3.5	+ 0.2	+ 6.3	- 5.8	-14.2	+ 3.0
1/4"	2W	5.85	-	-	-		-13.5	-18.6	-19.5	- 3.4	+ 1.5	+ 0.5	- 5.5	-14.5	+ 6.7
1/4"	3W	5.43	-	-	-		-19.9	-28.5	-24.1	- 9.0	- 6.8	- 2.6	- 7.9	-15.1	- 0.4
7/16"	5F	5.31	-	-	-		-14.7	-17.9	-29.2	- 9.2	- 4.5	- 7.0	- 9.2	-15.1	- 0.4
1/4"	48-1W	6.79	-	-	-		-14.3	-14.9	-15.2	- 5.6	+ 0.7	+ 2.2	+ 0.4	-10.8	- 1.2
3/8"	3F	5.04	-	-	-		-27.6	-24.8	-23.0	- 4.4	- 1.6	+ 0.4	- 4.4	-11.7	+ 0.4
3/8"	4F	4.82	-	-	-		-31.7	-23.0	-24.3	- 7.3	+ 1.2	0.0	-12.0	-16.2	+ 2.5
1/4"	5W	6.24	-	-	-		-22.8	-20.2	-27.4	-13.3	- 3.2	- 8.5	-11.4	-15.4	- 9.4

TABLE III
OPERATOR - GAGES
PERCENT ERROR

PROJECT: 3-08-69-014

METAL THICKNESS	SAMPLE NO.	STRIP TEST	ELCOMETER				MICROTEST CORRECTED			MICROTEST UNCORRECTED			TINSLEY		
			I-4	I-1	E-3								G-1	E-3	C-1
1/8"	53-1	2.23	+ 1.3	(+18.8)	+13.0		-	-	-	-	-	-	+26.4	+10.8	+16.1
	3	2.08	+13.0	(+39.9)	+30.8		-	-	-	-	-	-	+41.3	+17.8	+30.3
3/16"	54-2	2.84	-	-	-		-	-	-	-	-	-	+38.7	+22.2	+18.0
	5	2.96	-	-	-8.1		-	-	-	-	-	-	+19.2	+ 1.4	+ 7.4
5/16"	55-1	1.86	- 6.4	-21.0	-12.9		-	-	-	-	-	-	+ 4.3	- 9.7	+ 1.1
	3	1.79	0.0	-11.7	- 1.7		-	-	-	-	-	-	+11.7	0.0	+11.7
7/16"	56-2	1.80	+10.0	+ 2.2	+ 3.9		-	-	-	-	-	-	+21.1	+11.7	+24.4
	4	1.92	- 2.1	- 9.9	- 4.2		-	-	-	-	-	-	- 2.1	- 2.1	+ 1.0
			I-4	I-1	E-3	I-3	E-3	E-2	I-1	E-3	E-2	I-1	G-1	E-3	C-1
	1-1	2.87	-30.3	-21.6	-21.3	-17.1	-44.9	-33.8	-41.1	-24.7	-22.6	-20.6	-18.1	-29.6	-26.1
	2★	1.80	+20.0	(+25.0)	(+26.7)	(+38.9)	+10.6	+16.1	+ 8.3	+43.3	+32.8	+41.1	+47.2	+29.4	+40.6
1/16"	3	2.59	- 8.5	-	(+ 9.3)	(+13.5)	- 3.1	+ 5.0	-10.0	+19.3	+16.2	+12.7	+20.5	+10.0	+18.1
	4	2.76	+ 1.4	-	-	-	+ 6.9	+ 8.0	- 0.4	+28.3	+18.5	+21.0	+21.4	+ 8.7	+15.2
	5★	1.34	+92.5	(+49.3)	(+99.3)	(+97.8)	+85.1	+129.1	+94.8	+129.0	+150.7	+138.8	+154.5	+100.0	+123.9
	2-1	2.76	-15.2	-13.4	-13.8	- 2.9	-31.9	-23.6	- 4.0	- 8.3	- 8.7	+17.4	+ 6.5	-13.4	- 6.2
	2	2.57	-14.0	-11.7	-12.1	+ 2.7	-30.0	-17.9	- 1.2	- 4.7	- 1.9	+21.8	+12.1	-12.8	- 8.6
1/8"	3	2.67	-12.0	-12.4	-11.6	+ 1.5	-29.6	-21.7	-25.8	- 5.2	- 6.0	- 4.1	+ 3.4	-16.1	-12.0
	4	2.49	- 9.2	- 8.0	- 8.4	+ 6.8	-35.3	-19.7	-16.1	- 9.2	- 3.2	+ 7.6	+ 6.4	-11.2	- 5.6
	5	2.48	- 9.7	-11.7	- 6.4	+ 2.4	-32.2	-28.2	-21.8	- 6.0	-11.7	+ 2.0	+ 4.4	-14.5	- 9.7
GAGE ACCURACY (WITHIN ± 15%)			158/238 = 66.4%				42/276 = 15.2%			209/276 = 75.7%			221/299 = 73.9%		

TABLE IV-A

Comparison Test
&
Regression Analysis Plot

TABLE IV-A

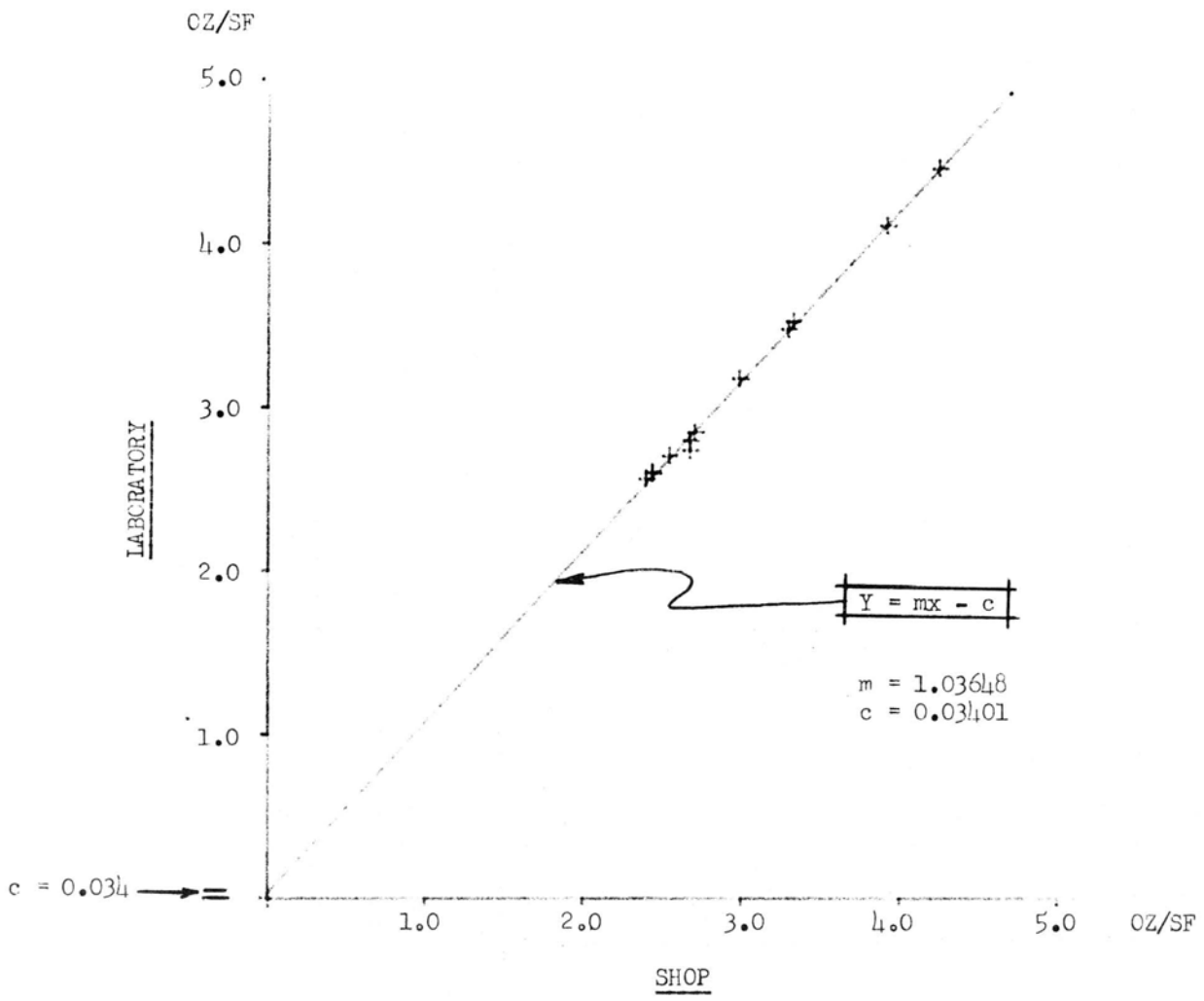
COMPARISON TEST
(Coupon Weigh-Checking vs. Strip Test)

PROJECT: 3-08-69-014 PAGE 1 of 1

SAMPLE NO.	SHOP				LABORATORY				DIFFERENCES	
	Pickled Weight (gms)	Galv. Weight (gms)	Diff. (gms)	Galv. Coat'g Oz/SF	Galv. Weight (gms)	Strip'd Weight (gms)	Diff. (gms)	Galv. Coat'g Oz/SF	OZ/SF	%
2037-1	500.4	517.7	17.3	2.44	517.7	499.2	18.5	2.59	0.15	5.8
2	486.0	503.0	17.0	2.40	503.0	484.8	18.2	2.55	0.15	5.9
3	506.6	524.7	18.1	2.55	525.0	505.8	19.2	2.69	0.14	5.2
2028-1	524.5	554.6	30.1	4.25	554.5	522.8	31.7	4.44	0.19	4.3
2	522.0	549.8	27.8	3.92	549.7	520.5	29.2	4.09	0.17	4.2
3	495.7	516.8	21.2	2.99	516.8	494.3	22.5	3.16	0.17	5.4
2038-1	513.1	536.7	23.6	3.33	536.5	511.5	25.0	3.51	0.18	5.1
2	506.3	529.7	23.4	3.30	529.4	504.7	24.7	3.46	0.16	4.6
3	513.7	532.9	19.2	2.71	532.7	512.5	20.2	2.83	0.12	4.2
4282-1	513.8	532.8	19.0	2.68	533.0	513.2	19.8	2.78	0.10	3.6
2	517.0	536.0	19.0	2.68	535.9	516.5	19.4	2.72	0.04	1.5
3	518.5	535.8	17.3	2.44	536.0	517.6	18.4	2.58	0.14	5.4
AVERAGE PERCENT DIFFERENCE (ALL READINGS).....										4.6%

DISCUSSION: The results of this test indicate that for galvanized coatings on 1/4" steel plate, the LABORATORY data indicates a greater weight of coating than does the SHOP data - an average increase of 4.6%.

The results shown above were verified by regression analysis prior to the development of Table IV-B.



REGRESSION ANALYSIS PLOT for TABLE IV - A

TABLE IV-B

Comparison Test
(Correction of Results)

TABLE IV-B

COMPARISON TEST
(Correction of Results for 1/4" Plates)

PROJECT: 3-08-69-014

SAMPLE NO.	ORIG'L STRIP TEST OZ/SF	CORR'T'D STRIP TEST OZ/SF	ELCOMETER				MIKROTEST (UNCORRECTED)			TINSLEY		
			C-2	I-3	E-3	I-1	I-2	E-2	E-3	E-3	G-1	E-2
10-1	2.69	2.57	11.3	10.1	10.9	14.0	27.2	14.0	22.2	10.9	3.9	3.9
2	3.27	3.12	21.5	24.7	27.2	28.2	25.0	8.3	36.5	23.7	11.5	28.2
3	3.00	2.86	7.3	13.6	17.8	16.1	11.2	7.0	0.7	10.8	0.7	9.4
4	2.94	2.80	7.5	5.7	6.4	18.2	8.9	5.4	0.4	2.8	2.8	5.4
5	2.78	2.65	6.8	10.2	9.1	17.4	8.7	11.7	0.8	6.8	2.3	2.3
			E-3	I-1	C-1		E-2	I-2	I-1	G-1	E-3	C-1
20-1	2.39	2.28	1.3	3.5	3.9	-	3.5	5.7	0.0	23.7	8.8	1.8
2	2.32	2.21	4.1	0.9	0.0	-	5.9	0.9	7.7	17.2	6.8	1.4
3	2.40	2.29	3.1	9.2	1.7	-	14.4	10.5	7.0	0.0	10.9	4.8
4	2.36	2.25	7.1	10.2	2.2	-	19.1	8.4	9.3	4.4	12.0	11.1
5	2.40	2.29	6.6	6.6	0.4	-	10.9	4.4	4.4	13.1	7.4	4.8
% Within ASTM E 376(±15%)			77.1%				83.3%			86.7%		

COMPARISON OF ACCURACIES:	ELCOMETER	MIKRCTEST	TINSLEY
Original %	68.6%	73.3%	80.0%
CORRECTED %	77.1%	83.3%	86.7%
Difference %	+ 9.5%	+ 10.0%	+ 6.7%

TABLE V

Measured Coating Thicknesses
(Paint on Steel)

PROJECT: 3-08-69-014

TABLE V
MEASURED COATING THICKNESSES
PAINT ON STEEL

SAMPLE & LOCATION	ELCOMETER					MIKROTEST				TINSLEY				TOOKE GAGE (MILS)	MICRO-SCOPIC (MILS)
	1	2	3	4	AVG (MILS)	1	2	3	AVG (MILS)	1	2	3	AVG (MILS)		
4-1A	2.5	2.1	2.1	1.9	2.2	1.7	1.5	1.7	1.6	2.5	2.5	3.0	2.7	2.5	2.1
B	2.3	2.1	2.2	1.8	2.1	1.8	1.6	2.2	1.9	2.8	3.0	3.5	3.1	3.0	2.5
C	2.4	2.1	2.2	1.8	2.1	2.0	2.5	2.3	2.3	3.3	3.2	3.0	3.2	2.5	2.1
D	2.5	2.3	2.3	1.9	2.2	1.9	2.5	2.1	2.2	3.3	3.0	3.0	3.1	2.5	2.6
E	2.2	2.2	2.1	1.9	2.1	2.1	2.0	2.1	2.1	3.0	3.1	3.5	3.2	2.5	1.7
Avg.	2.4	2.2	2.2	1.9	-	1.9	2.0	2.1	-	3.0	3.0	3.2	-	2.6	2.2
4-2A	3.9	3.1	2.9	3.0	3.2	3.3	3.2	3.1	3.2	3.9	4.2	4.5	4.2	3.5	2.1
B	3.8	3.2	3.0	3.4	3.4	3.0	3.2	3.5	3.2	4.7	4.0	4.5	4.4	4.0	3.0
C	3.7	3.1	3.1	3.3	3.3	3.2	4.0	3.8	3.7	4.6	4.5	4.5	4.5	4.5	3.8
D	3.7	3.1	3.0	3.2	3.2	3.0	3.4	3.3	3.2	4.5	4.5	4.5	4.5	4.5	2.4
E	3.9	3.2	3.1	3.3	3.4	3.5	3.7	3.7	3.6	4.5	4.5	5.0	4.7	3.5	3.7
Avg.	3.8	3.1	3.0	3.2	-	3.2	3.5	3.5	-	4.4	4.3	4.6	-	4.0	3.0
5-1A	3.1	2.5	2.2	2.3	2.5	2.2	2.2	2.2	2.2	3.2	3.2	3.0	3.1	2.5	2.6
B	2.9	2.5	2.3	2.3	2.5	2.3	2.6	2.4	2.4	3.0	3.3	3.5	3.3	3.0	2.6
C	2.6	2.4	2.2	2.3	2.4	2.5	2.1	2.4	2.3	3.3	3.5	3.5	3.4	3.0	2.4
D	2.9	2.6	2.3	2.5	2.6	2.5	2.5	2.7	2.6	3.3	3.6	3.5	3.5	2.5	2.2
E	3.0	2.6	2.2	2.4	2.6	2.5	2.3	2.4	2.4	3.3	3.7	3.5	3.5	3.0	2.3
Avg.	2.9	2.5	2.2	2.4	-	2.4	2.3	2.4	-	3.2	3.5	3.4	-	2.8	2.4
5-2A	4.3	3.4	3.4	3.5	3.6	3.2	3.7	3.7	3.5	4.5	4.2	4.5	4.4	5.0	3.2
B	3.9	3.3	3.3	3.5	3.5	3.0	3.5	3.1	3.2	4.3	4.0	4.5	4.3	4.5	2.8
C	4.2	3.7	3.4	3.7	3.8	3.8	4.3	3.8	4.0	4.8	4.8	4.5	4.7	5.0	3.8
D	3.9	3.6	3.3	3.5	3.6	3.2	3.9	3.7	3.6	4.3	4.3	4.5	4.4	4.5	3.5
E	3.9	3.4	3.0	3.3	3.4	3.3	3.8	3.4	3.5	4.0	4.1	4.5	4.2	4.0	2.6
Avg.	4.0	3.5	3.3	3.5	-	3.3	3.8	3.5	-	4.4	4.3	4.5	-	4.4	3.2
6-1A	3.0	2.5	2.3	2.4	2.6	2.2	2.1	2.5	2.3	3.0	3.4	3.5	3.3	3.0	
B	2.2	2.0	1.9	2.3	2.1	2.8	2.8	2.8	2.8	3.3	3.5	3.5	3.4	3.0	
C	3.0	2.4	2.3	2.5	2.6	3.6	3.1	3.4	3.4	3.8	3.7	3.5	3.7	3.5	
D	2.9	2.3	2.2	2.3	2.4	2.5	2.3	2.9	2.6	3.0	3.3	3.0	3.1	2.5	
E	2.1	2.0	2.0	2.2	2.1	2.3	2.2	2.5	2.3	3.3	3.0	3.5	3.3	2.5	
Avg.	2.6	2.2	2.1	2.3	-	2.7	2.5	2.8	-	3.3	3.4	3.4	-	2.9	

TABLE V
MEASURED COATING THICKNESSES
PAINT ON STEEL

PROJECT: 3-08-69-014

SAMPLE & LOCATION	ELCOMETER 1	2	3	4	AVG (MILS)	MIKROTEST 1	2	3	AVG (MILS)	TINSLEY 1	2	3	AVG (MILS)	TOOKE GAGE (MILS)	MICRO-SCOPIC (MILS)
6-2A	4.1	3.7	3.6	3.5	3.7	3.5	3.5	3.9	3.6	4.0	4.5	4.0	4.2	3.5	
B	4.0	3.5	3.4	3.6	3.6	3.0	3.5	4.3	3.6	4.3	4.5	4.5	4.4	4.5	
C	4.2	3.6	3.5	3.6	3.7	3.5	3.7	4.3	3.8	4.5	5.0	4.5	4.7	4.5	
D	4.0	3.4	3.3	3.3	3.5	2.8	3.3	3.7	3.3	4.0	4.5	4.0	4.2	3.5	
E	3.8	3.2	3.3	3.2	3.4	2.5	3.0	3.5	3.0	4.0	4.3	4.0	4.1	4.0	
Avg.	4.0	3.5	3.4	3.4	-	3.1	3.4	3.9	-	4.2	4.6	4.2	-	4.0	
7-1A	6.4	6.3	5.4	4.8	5.7	6.5	7.0	6.9	6.8	7.0	7.0	7.5	7.2	7.5	5.9
B	6.5	5.8	5.0	4.6	5.5	5.8	6.1	6.4	6.1	6.5	6.5	7.0	6.7	7.0	5.0
C	6.2	6.4	5.0	4.7	5.6	6.2	6.2	6.2	6.2	7.0	7.0	7.5	7.2	7.0	6.6
D	6.6	6.7	5.1	5.0	5.8	7.0	7.2	7.4	7.2	7.0	7.5	8.0	7.5	7.5	6.7
E	6.3	5.3	4.3	4.5	5.1	6.0	6.4	6.2	6.2	7.0	7.0	8.0	7.3	6.5	6.1
Avg.	6.4	6.1	5.0	4.7	-	6.3	6.6	6.6	-	6.9	7.0	7.6	7.2	7.1	6.1
7-2A	2.6	2.0	1.5	1.5	1.9	1.8	1.8	1.9	1.8	2.8	2.6	2.8	2.7	1.6	1.2
B	2.5	2.0	1.5	1.5	1.9	1.9	1.8	1.8	1.8	2.8	2.5	2.8	2.7	1.7	1.9
C	2.3	1.8	1.6	1.4	1.8	2.0	1.8	1.9	1.9	2.9	2.7	3.0	2.9	2.5	2.3
D	2.4	1.8	1.5	1.4	1.8	2.2	1.9	1.7	1.9	2.7	2.5	2.8	2.7	2.1	1.6
E	2.5	2.0	1.5	1.5	1.9	2.0	2.0	1.8	1.9	2.8	2.7	3.0	2.8	1.7	1.8
Avg.	2.5	1.9	1.5	1.5	-	2.0	1.9	1.8	-	2.8	2.6	2.9	-	1.9	1.8
7-3A	4.8	4.0	3.6	3.8	4.1	4.0	4.9	4.7	4.5	5.0	5.2	5.5	5.2	4.0	4.0
B	4.9	3.7	3.5	3.6	3.9	4.2	5.3	4.9	4.8	5.0	5.0	5.8	5.3	4.5	4.7
C	4.6	3.8	3.4	3.6	3.8	4.5	5.5	5.0	5.0	6.0	5.8	6.0	5.9	5.0	5.1
D	4.4	4.0	3.7	3.6	3.9	4.0	4.8	4.5	4.4	5.2	5.2	5.5	5.3	4.5	3.9
E	4.3	3.1	3.1	3.3	3.4	3.8	3.9	4.3	4.0	4.5	4.5	5.3	4.8	4.0	3.5
Avg.	4.6	3.7	3.5	3.6	-	4.1	4.9	4.7	-	5.1	5.1	5.6	5.3	4.4	4.2
8-1A	5.0	4.3	4.0	3.9	4.3	4.8	5.3	5.4	5.2	5.5	5.5	6.0	5.7	4.5	4.4
B	3.5	2.9	2.7	2.8	3.0	3.8	3.8	3.8	3.8	4.5	4.5	4.5	4.5	3.5	2.8
C	4.5	3.7	3.8	3.6	3.9	4.8	5.0	4.8	4.9	5.5	5.0	5.5	5.3	5.0	3.9
D	4.8	4.8	4.6	4.4	4.6	5.2	5.7	5.8	5.6	6.0	6.0	6.5	6.2	5.5	4.3
E	3.3	2.6	2.6	3.0	2.9	4.0	3.5	3.6	3.7	4.5	4.0	5.0	4.5	4.0	3.0
Avg.	4.2	3.7	3.5	3.5	-	4.5	4.7	4.7	-	5.2	5.0	5.5	-	4.5	3.7

PROJECT: 3-08-69-014

TABLE V
MEASURED COATING THICKNESSES
PAINT ON STEEL

SAMPLE & LOCATION	ELCOMETER					MIKROTEST				TINSLEY				TOOKE GAGE (MILS)	MICRO-SCOPIC (MILS)
	1	2	3	4	AVG (MILS)	1	2	3	AVG (MILS)	1	2	3	AVG (MILS)		
8-2A	2.2	2.1	1.8	1.8	2.0	2.2	1.8	2.2	2.1	3.0	3.0	3.2	3.1	2.5	1.8
B	1.9	2.0	1.6	1.6	1.8	2.0	1.7	1.6	1.8	2.7	2.5	2.8	2.7	2.0	1.3
C	2.0	2.2	1.7	1.7	1.9	1.9	1.9	1.8	1.9	2.8	2.8	3.0	2.9	2.5	1.9
D	2.3	2.3	2.0	2.1	2.2	2.1	2.0	2.2	2.1	3.0	3.0	3.3	3.1	2.5	1.7
E	1.9	2.0	1.5	1.8	1.8	1.9	1.9	1.7	1.8	2.6	2.6	2.8	2.7	2.0	1.5
Avg.	2.1	2.1	1.7	1.8	-	2.0	1.9	1.9	-	2.8	2.8	3.0	-	2.3	1.6
8-3A	6.3	6.2	5.9	5.2	5.9	7.5	7.6	7.5	7.5	8.0	8.0	8.0	8.0	6.5	7.6
B	5.5	5.6	5.4	4.6	5.3	6.0	5.9	6.1	6.0	7.0	6.8	7.0	6.9	5.0	4.9
C	5.8	6.5	5.7	5.0	5.8	7.5	8.2	7.5	7.7	8.0	8.0	8.0	8.0	7.5	6.8
D	6.0	6.6	6.9	5.3	6.2	7.5	8.2	7.8	7.8	8.0	8.0	8.5	8.2	6.5	6.7
E	5.5	5.4	5.9	4.6	5.4	6.0	5.9	5.9	5.9	6.5	6.5	6.5	6.5	6.0	4.8
Avg.	5.8	6.1	6.0	4.9	-	6.9	7.2	7.0	-	7.5	7.5	7.6	-	6.3	6.2
9-1A	6.8	6.0	5.8	5.6	6.1	7.0	7.6	6.9	7.2	8.0	7.5	7.5	7.7	7.0	
B	6.8	6.1	5.8	5.4	6.0	7.0	8.1	7.4	7.5	8.0	8.0	8.0	8.0	8.0	
C	6.5	5.7	5.5	5.4	5.8	7.0	8.1	7.7	7.6	8.0	8.0	8.0	8.0	8.0	
D	6.8	5.6	5.4	5.3	5.8	5.8	6.4	6.2	6.1	7.0	6.5	6.8	6.8	6.5	
E	7.2	6.5	5.7	5.3	6.2	7.2	8.6	7.5	7.8	8.0	8.5	8.3	8.3	7.5	
Avg.	6.8	6.0	5.6	5.4	-	6.8	7.8	7.1	-	7.8	7.7	7.7	-	7.4	
9-2A	4.5	3.6	3.9	3.5	3.9	4.2	4.2	4.1	4.2	5.0	5.0	4.8	4.9	4.7	
B	3.8	3.2	3.3	3.3	3.4	3.8	4.0	3.8	3.9	4.5	4.5	4.5	4.5	3.5	
C	3.8	3.4	3.5	3.4	3.5	3.6	4.0	3.9	3.8	4.5	4.8	4.5	4.6	3.7	
D	4.0	3.4	3.7	3.5	3.6	4.2	4.0	4.0	4.1	5.0	4.9	4.5	4.8	3.0	
E	3.9	3.6	3.4	3.4	3.6	3.8	4.1	4.0	4.0	5.0	5.0	4.8	4.9	4.4	
Avg.	4.0	3.4	3.6	3.4	-	3.9	4.1	4.0	-	4.8	4.8	4.6	-	3.9	
9-3A	2.4	2.0	1.9	1.7	2.0	2.0	2.4	1.7	2.0	3.0	2.8	2.6	2.8	1.9	
B	2.0	1.8	1.7	1.4	1.7	1.8	1.9	1.6	1.8	2.6	2.6	2.5	2.6	2.0	
C	2.0	1.9	1.7	1.4	1.8	2.0	1.9	1.7	1.9	2.6	2.7	2.6	2.6	2.5	
D	2.0	2.0	1.8	1.5	1.8	1.9	2.0	1.8	1.9	2.6	2.6	2.6	2.6	1.8	
E	2.0	2.0	1.8	1.4	1.8	2.2	1.8	1.6	1.9	2.5	2.6	2.5	2.5	1.8	
Avg.	2.1	1.9	1.8	1.5	-	2.0	2.0	1.7	-	2.7	2.7	2.6	-	2.0	

TABLE VI

Percent Error
(Paint on Steel)

TABLE VI
PERCENT ERROR
PAINT ON STEEL

PROJECT: 3-08-69-014

Sample	Elcometer					Mikrotest				Tinsley				Tooke Gage
	1	2	3	4	Avg.	1	2	3	Avg.	1	2	3	Avg.	
4-1A	+ 19	0	0	-10	+ 5	-19	-29	-19	-24	+ 19	+ 19	+ 43	+ 29	+19
B	- 1	-19	-12	-28	-19	-28	-36	-12	-24	+ 12	+ 20	+ 40	+ 24	+20
C	+ 14	0	+ 5	-14	0	- 5	+19	+10	+10	+ 57	+ 52	+ 43	+ 52	+19
D	- 4	-12	-12	-27	-15	-27	- 4	-19	-15	+ 27	+ 15	+ 15	+ 19	- 4
E	+ 29	+29	+24	+12	+24	+24	+18	+24	+24	+ 76	+ 82	+106	+ 88	+47
Avg.	+ 9	0	0	-14	-	-14	- 9	- 5	-	+ 36	+ 36	+ 45	-	+18
4-2A	+ 86	+48	+38	+43	+52	+57	+52	+48	+52	+ 86	+100	+114	+100	+67
B	+ 27	+ 7	0	+13	+13	0	+ 7	+17	+ 7	+ 57	+ 33	+ 50	+ 47	+33
C	- 3	-18	-18	-13	-13	-16	+ 5	0	- 3	+ 21	+ 18	+ 18	+ 18	+18
D	+ 54	+29	+25	+33	+33	+25	+38	+38	+33	+ 88	+ 88	+ 88	+ 88	+88
E	+ 5	-14	-16	-11	- 8	- 5	0	0	- 3	+ 22	+ 22	+ 35	+ 27	- 5
Avg.	+ 27	+ 3	0	+ 7	-	+ 7	+17	+17	-	+ 47	+ 43	+ 53	-	+33
5-1A	+ 19	- 4	-15	-12	- 4	-15	-15	-15	-15	+ 23	+ 23	+ 15	+ 19	- 4
B	+ 12	- 4	-12	-12	- 4	-12	0	- 8	- 8	+ 15	+ 27	+ 35	+ 27	+15
C	+ 8	0	- 8	- 4	0	+ 4	-12	0	- 4	+ 38	+ 46	+ 46	+ 42	+25
D	+ 32	+18	+ 5	+14	+18	+14	+14	+23	+18	+ 50	+ 64	+ 59	+ 59	+14
E	+ 30	+13	- 4	+ 4	+13	+ 9	0	+ 4	+ 4	+ 43	+ 61	+ 52	+ 52	+30
Avg.	+ 21	+ 4	- 8	0	-	0	- 4	0	-	+ 33	+ 46	+ 42	-	+17
5-2A	+ 34	+ 6	+ 6	+ 9	+12	0	+16	+16	+ 9	+ 41	+ 31	+ 41	+ 38	+56
B	+ 39	+18	+18	+25	+25	+ 7	+25	+11	+14	+ 54	+ 43	+ 61	+ 54	+61
C	+ 11	- 3	-11	- 3	0	0	+13	0	+ 5	+ 26	+ 26	+ 18	+ 24	+32
D	+ 11	+ 3	- 6	0	+ 3	- 9	+11	+ 6	+ 3	+ 23	+ 23	+ 29	+ 26	+29
E	+ 50	+31	+15	+27	+31	+27	+46	+31	+35	+ 54	+ 58	+ 73	+ 62	+54
Avg.	+ 25	+ 9	+ 3	+ 9	-	+ 3	+19	+ 9	-	+ 38	+ 34	+ 41	-	+38
7-1A	+ 8	+ 7	- 8	-19	- 3	+10	+19	+17	+15	+ 19	+ 19	+ 27	+ 22	+27
B	+ 30	+16	0	- 8	+10	+16	+22	+28	+22	+ 30	+ 30	+ 40	+ 34	+40
C	- 6	- 3	-24	-29	-15	- 6	- 6	- 6	- 6	+ 6	+ 6	+ 14	+ 9	+ 6
D	- 1	0	-24	-25	-13	+ 4	+ 7	+10	+ 7	+ 4	+ 12	+ 19	+ 12	+12
E	+ 3	-13	-30	-26	-16	- 2	+ 5	+ 2	+ 2	+ 15	+ 15	+ 31	+ 20	+ 7
Avg.	+ 5	0	-18	-23	-	+ 3	+ 8	+ 8	-	+ 13	+ 15	+ 25	+ 18	+16

TABLE VI
PERCENT ERROR
PAINT ON STEEL

PROJECT: 3-08-69-014

Sample	Elcometer					Mikrotest				Tinsley				Tooke Gage
	1	2	3	4	Avg.	1	2	3	Avg.	1	2	3	Avg.	
7-2A	+117	+67	+25	+25	+58	+50	+50	+58	+50	+133	+117	+133	+125	+33
B	+ 32	+ 5	-21	-21	0	0	- 5	- 5	- 5	+ 47	+ 32	+ 47	+ 42	-11
C	0	-22	-30	-39	-22	-13	-22	-17	-17	+ 26	+ 17	+ 30	+ 26	+ 9
D	+ 50	+12	- 6	-12	+12	+38	+19	+ 6	+19	+ 69	+ 56	+ 75	+ 69	+31
E	+ 39	+11	-17	-17	+ 6	+11	+11	0	+ 6	+ 56	+ 50	+ 67	+ 56	- 6
Avg.	+ 39	+ 6	-17	-17	-	+11	+ 6	0	-	+ 56	+ 44	+ 61	-	+ 6
7-3A	+ 20	0	-10	- 5	+ 2	0	+22	+18	+12	+ 25	+ 30	+ 38	+ 30	0
B	+ 4	-21	-26	-23	-17	-11	+13	+ 4	+ 2	+ 6	+ 6	+ 23	+ 13	- 4
C	- 10	-25	-33	-29	-25	-12	+ 8	- 2	- 2	+ 18	+ 14	+ 18	+ 16	- 2
D	+ 13	+ 3	- 5	- 8	0	+ 3	+23	+15	+13	+ 33	+ 33	+ 41	+ 36	+15
E	+ 23	-11	-11	- 6	- 3	+ 9	+11	+23	+14	+ 29	+ 29	+ 51	+ 37	+14
Avg.	+ 10	-12	-17	-14	-	- 2	+17	+12	-	+ 21	+ 21	+ 33	+ 26	+ 5
8-1A	+ 14	- 2	- 9	-11	- 2	+ 9	+20	+23	+18	+ 25	+ 25	+ 36	+ 30	+ 2
B	+ 25	+ 4	- 4	0	+ 7	+36	+36	+36	+36	+ 61	+ 61	+ 61	+ 61	+25
C	+ 15	- 5	- 3	- 8	0	+23	+28	+23	+26	+ 41	+ 28	+ 41	+ 36	+28
D	+ 12	+12	+ 7	+ 2	+ 7	+21	+33	+35	+30	+ 40	+ 40	+ 51	+ 44	+28
E	+ 10	-13	-13	0	- 3	+33	+17	+20	+23	+ 50	+ 33	+ 67	+ 50	+33
Avg.	+ 14	0	- 5	- 5	-	+22	+27	+27	-	+ 41	+ 35	+ 49	-	+22
8-2A	+ 22	+17	0	0	+11	+22	0	+22	+17	+ 67	+ 67	+ 78	+ 72	+39
B	+ 46	+54	+23	+23	+38	+54	+31	+23	+38	+108	+ 92	+115	+108	+54
C	+ 5	+16	-11	-11	0	0	0	- 5	0	+ 47	+ 47	+ 58	+ 53	+32
D	+ 35	+35	+18	+24	+29	+24	+18	+29	+24	+ 76	+ 76	+ 94	+ 82	+47
E	+ 27	+33	0	+20	+20	+27	+27	+13	+20	+ 73	+ 73	+ 87	+ 80	+33
Avg.	+ 31	+31	+ 6	+12	-	+25	+19	+19	-	+ 75	+ 75	+ 88	-	+44
8-3A	- 17	-18	-22	-32	-22	- 1	0	- 1	- 1	+ 5	+ 5	+ 5	+ 5	-14
B	+ 12	+14	+10	- 6	+ 8	+22	+20	+25	+22	+ 43	+ 39	+ 43	+ 41	+ 2
C	- 15	- 4	-16	-26	-15	+10	+21	+10	+13	+ 18	+ 18	+ 18	+ 18	+10
D	- 10	- 1	+ 3	-21	- 7	+12	+22	+16	+16	+ 19	+ 19	+ 27	+ 22	- 3
E	+ 15	+12	+23	- 4	+12	+25	+23	+23	+23	+ 35	+ 35	+ 35	+ 35	+25
Avg.	- 6	- 2	- 3	-21	-	+11	+16	+13	-	+ 21	+ 21	+ 23	-	+ 2