

# NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering  
Materials Laboratory Division  
Washington, D.C. 20594



May 16, 2011

MATERIALS LABORATORY FACTUAL REPORT

Report No. 11-059

## A. ACCIDENT INFORMATION

Place : San Bruno, California  
Date : September 9, 2010  
Vehicle : Pacific Gas & Electric Natural Gas Transmission Pipeline  
NTSB No. : DCA10MP008  
Investigator : Ravindra Chhatre, RPH-20

## B. COMPONENTS EXAMINED

One 6-foot 10.12-inch long section of 30-inch diameter pipe from Line 132, Section 180, 881 Glenview Drive, San Bruno, California.

## C. DETAILS OF THE EXAMINATION

This report contains an external mechanical testing report for lengths of pipe A1, A2, and A3, which comprised the above referenced section of pipe. The data are referred to in Materials Laboratory Report 11-049 and Materials Laboratory Report 11-058.

Donald Kramer  
Materials Engineer

**CERTIFIED TEST REPORT**

National Transportation Safety  
490 L'enfant Plaza SW  
Washington DC 20594

Job No.: B1-104-372  
Date: 5-4-11  
Cust. PO#: Verbal – D. Kramer

Description: 3 samples Tube Sections

----- TEST RESULTS -----

ID	Width, in.	Center		Tensile, ksi	Yield, ksi		Elong., % in 2"
		Thickness, in.			.2%	.5% EUL	
A1-1	1.501	0.368		74.5	49.5	51.5	33
-2	1.502	0.368		74.0	48.3	50.0	35
-3	1.500	0.370		73.5	48.6	47.8	35
A2-1	1.500	0.373		80.5	53.5	52.0	32
-2	1.498	0.373		80.0	52.0	50.0	32
-3	1.499	0.373		80.5	52.5	51.0	32
A3-1	1.500	0.376		82.0	51.0	51.0	29
-2	1.500	0.377		82.0	51.5	50.5	31
-3	1.499	0.376		82.5	55.0	52.5	31

Test Method: ASTM A370-10, Transverse

Width at Ends = Center Width + .002"

(See Attached Charts)

(R)

Authorized Agent

**Tensile Testing**  
**4520 Willow Pkwy**  
**Cleveland OH 44125**  
**216.641.3290**

**Preliminary Results**

**NATIONAL  
TRANSPORTATION  
SAFETY**

**VERBAL-DON K  
A1 A2 AE  
04/14/11**

**JB1104-372  
05/02/2011  
42**

**290M-TeFI-500 .5%  
EUL & .2% OS**

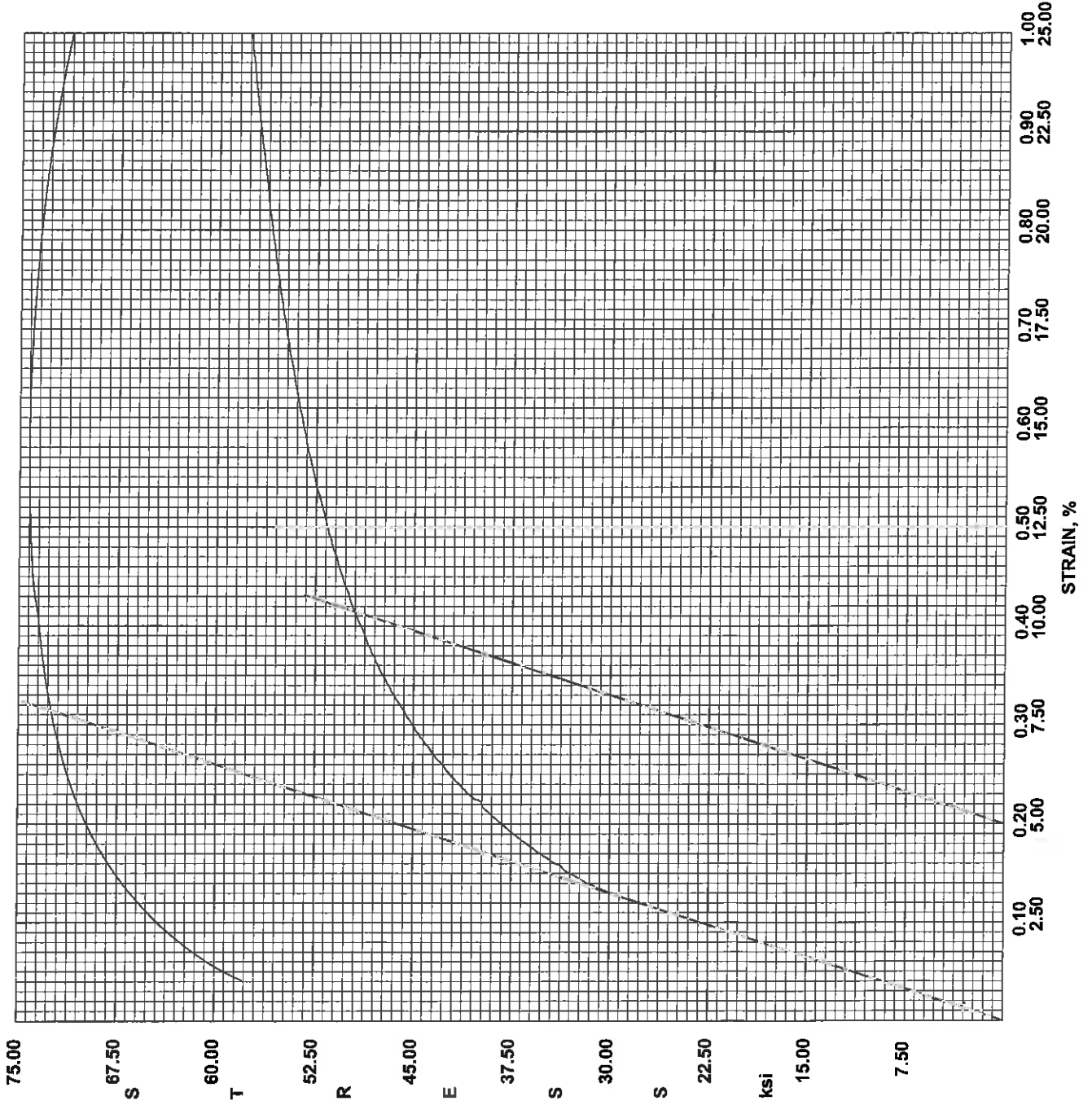
**Customer**  
**Contact**  
**PO**  
**Order Ref**  
**Order Ref**

**TTML Job#**  
**Test Date**  
**Operator**  
**Test Setting**

**Item Reference:**

":  
":

**Sample:** 1  
**Width, in:** 1.501  
**Thickness, in:** 0.368  
**Ult Load, lbf:** 41020  
**Tensile, psi:** 74500  
**OS .2%, psi:** 49500  
**EUL .5%, psi:** 51500  
**Elong, %:** 33



**Tensile Testing**  
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**Cleveland OH 44125**  
**216.641.3290**

**Preliminary Results**

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A1 A2 AE  
04/14/11**

**JB1104-372  
05/02/2011  
42**

**290M-TeFI-500 .5%  
EUL & .2% OS**

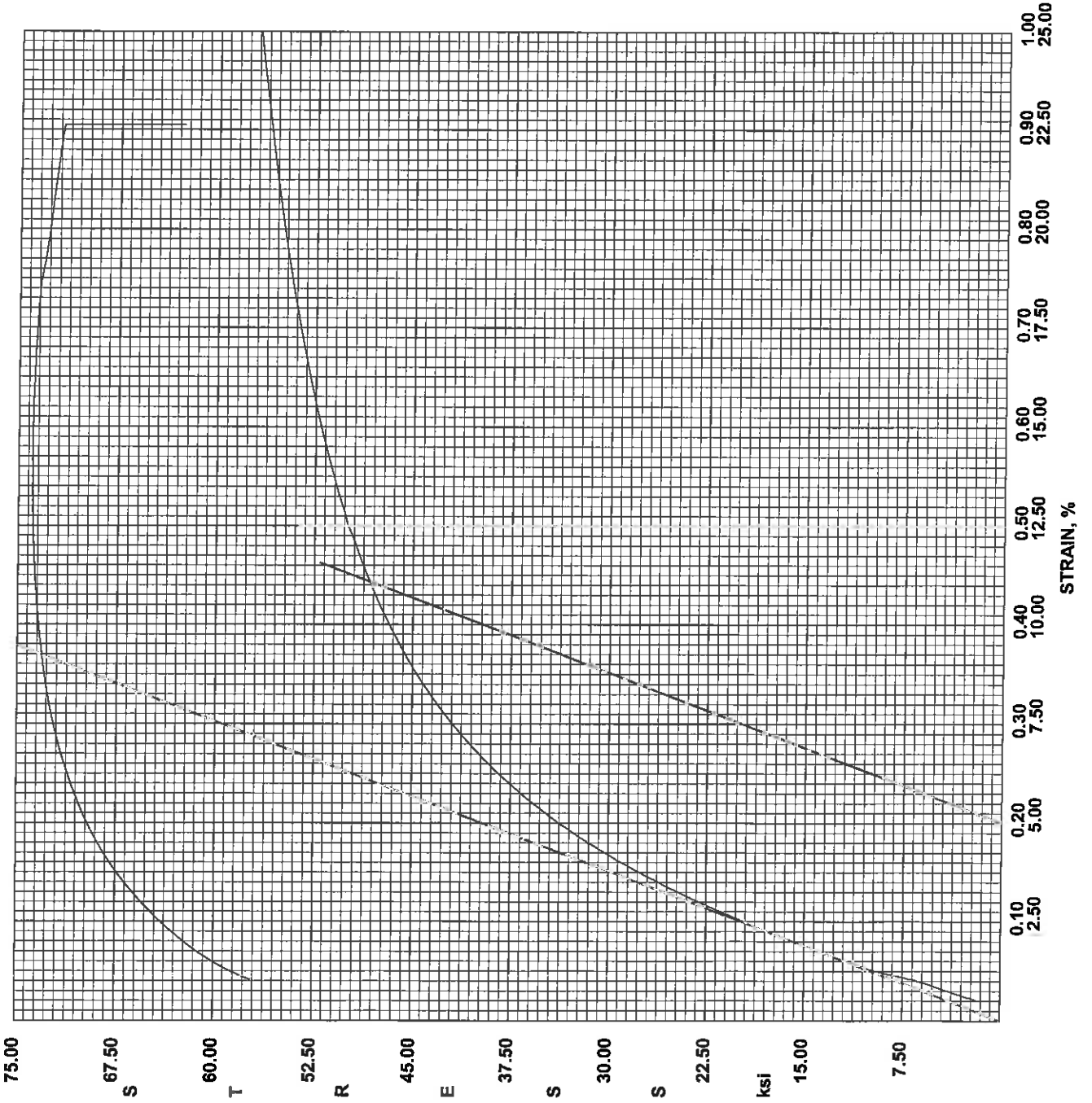
**Customer**  
**Contact**  
**PO**  
**Order Ref**  
**Order Ref**

**TTML Job#**  
**Test Date**  
**Operator**  
**Test Setting**

**Item Reference:** A1 RP

":  
":

**Sample:** 2  
**Width, in:** 1.502  
**Thickness, in:** 0.368  
**Ult Load, lbf:** 40880  
**Tensile, psi:** 74000  
**OS .2%, psi:** 48300  
**EUL .5%, psi:** 50000  
**Elong, %:** 35



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A1 A2 AE  
04/14/11**

**JB1104-372  
05/02/2011  
42**

**290M-TeFI-500 .5%  
EUL & .2% OS**

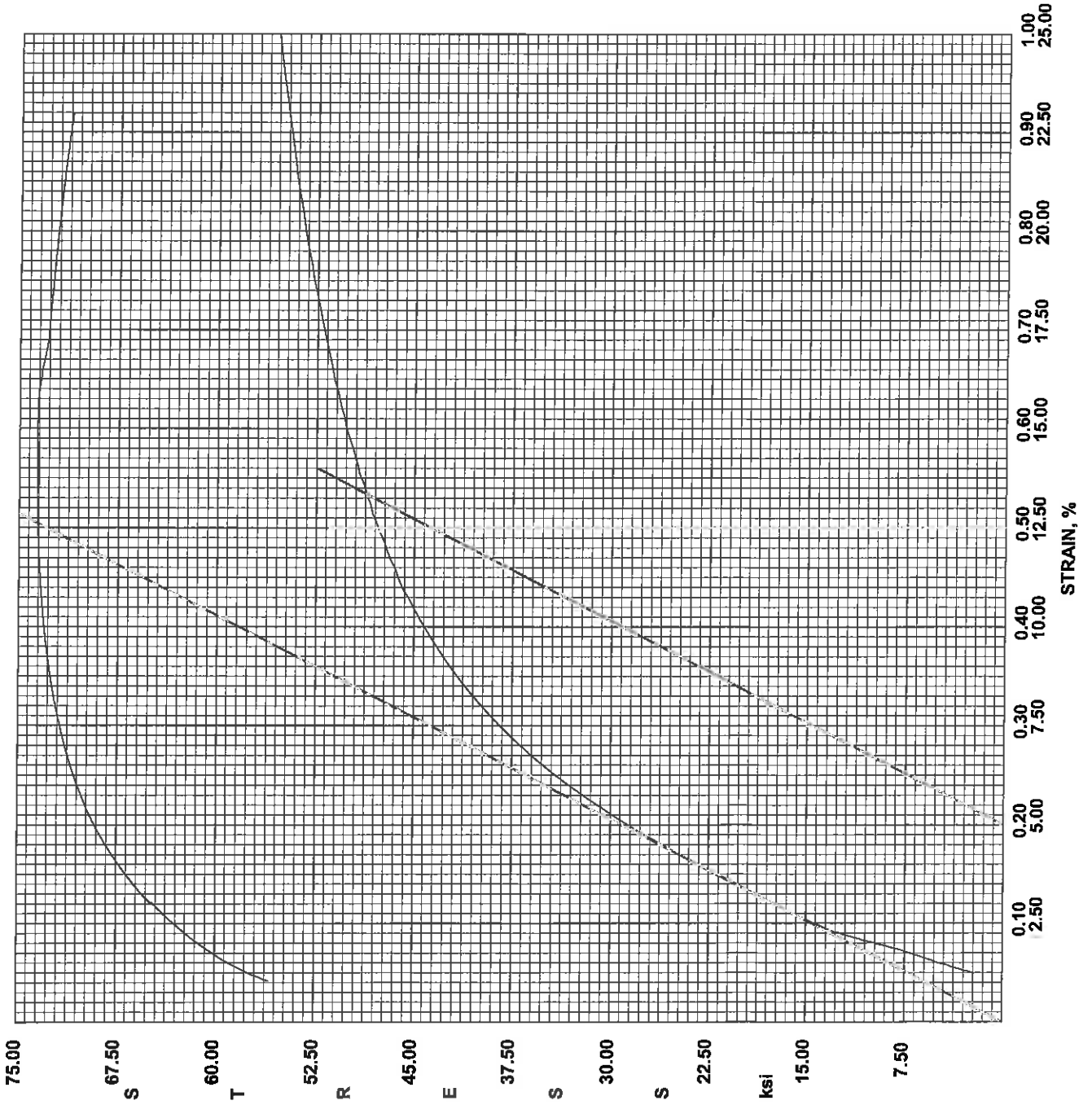
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**Contact**  
**PO**  
**Order Ref**  
**Order Ref**

**TTML Job#**  
**Test Date**  
**Operator**  
**Test Setting**

**Item Reference:** A1 RP

..  
..

**Sample:** 3  
**Width, in:** 1.500  
**Thickness, in:** 0.370  
**Ult Load, lbf:** 40870  
**Tensile, psi:** 73500  
**OS .2%, psi:** 48600  
**EUL .5%, psi:** 47800  
**Elong, %:** 35



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Preliminary Results

Customer: NATIONAL TRANSPORTATION SAFETY  
 Contact: VERBAL-DON K  
 PO: A1 A2 AE  
 Order Ref: 04/14/11  
 Order Ref:  
 TTML Job#: JB1104-372  
 Test Date: 04/23/2011  
 Operator: 42  
 Test Setting: 100M-TeFI-500 .5% EUL & .2% OS

Item Reference: A2

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Sample: 1

Width, in: 1.500

Thickness, in: 0.373

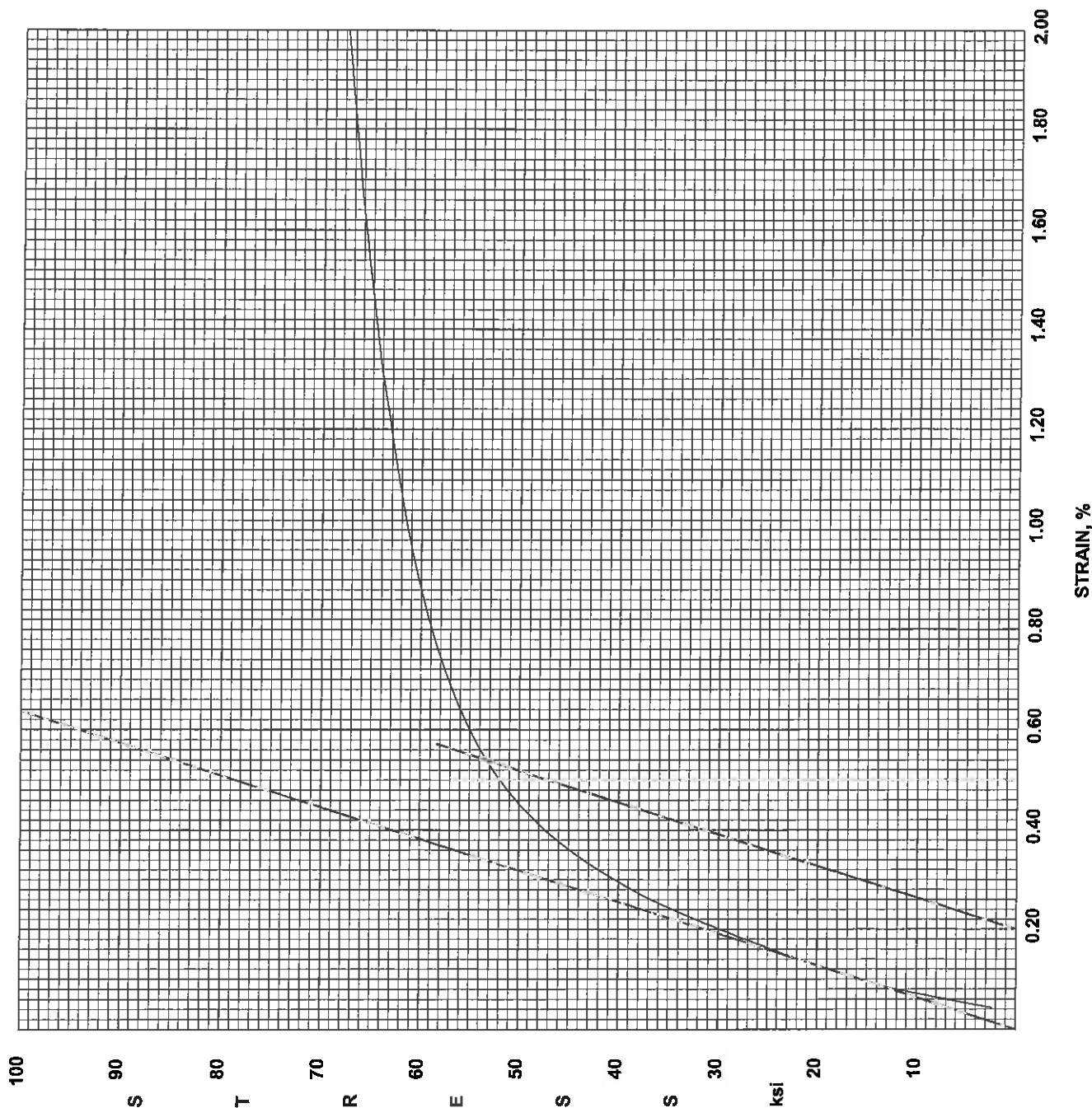
Ult Load, lbf: 44920

Tensile, psi: 80500

OS .2%, psi: 53500

EUL .5%, psi: 52000

Elong, %: 32



**Tensile Testing**  
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Preliminary Results

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04/23/2011  
42**

**100M-TeFI-500 .5%  
EUL & .2% OS**

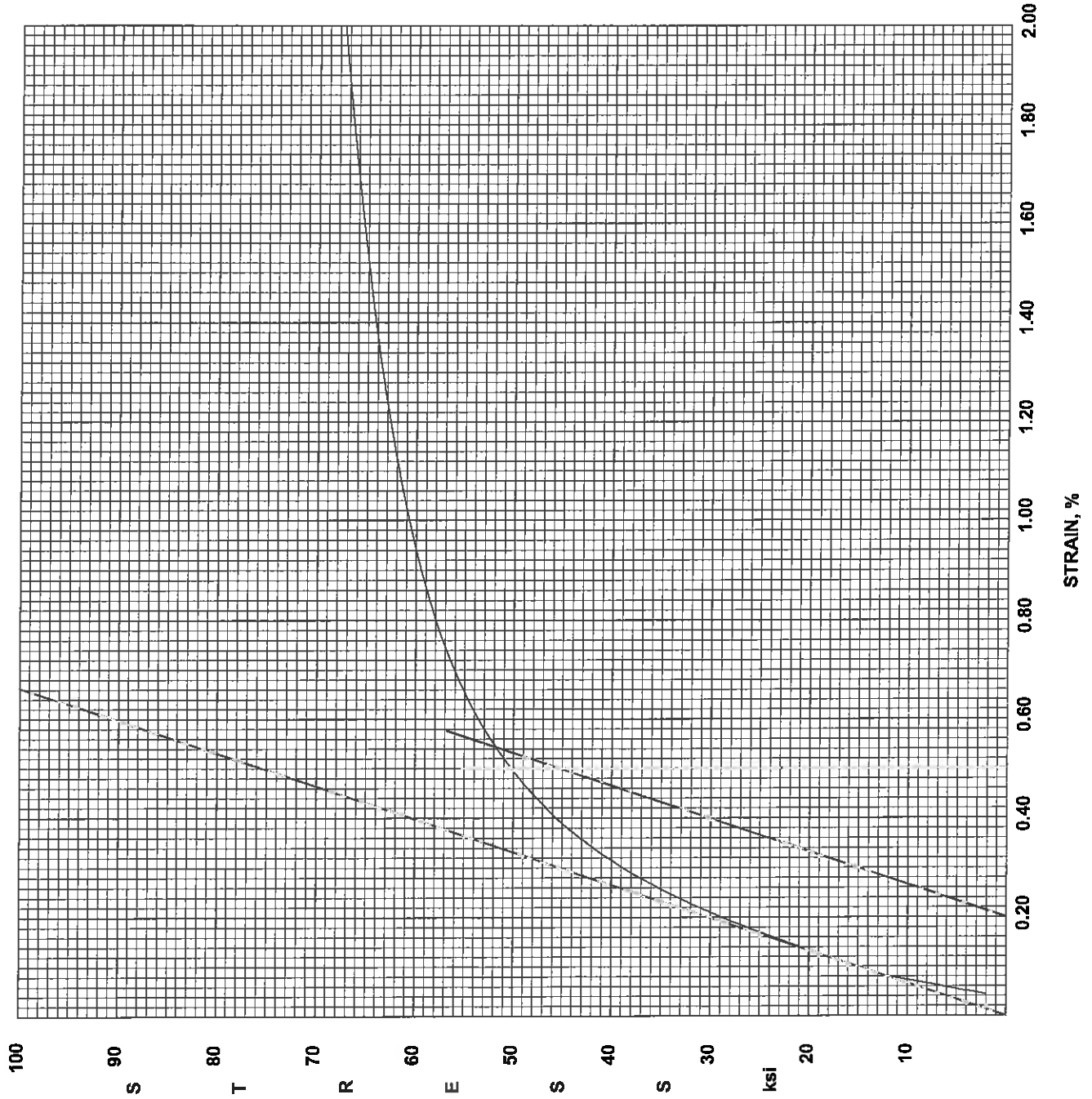
Customer  
Contact  
PO  
Order Ref  
Order Ref

TTML Job#  
Test Date  
Operator  
Test Setting

Item Reference: A2

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..

Sample: 2  
Width, in: 1.498  
Thickness, in: 0.373  
Ult Load, lbf: 44820  
Tensile, psi: 80000  
OS .2%, psi: 52000  
EUL .5%, psi: 50000  
Elong, %: 32

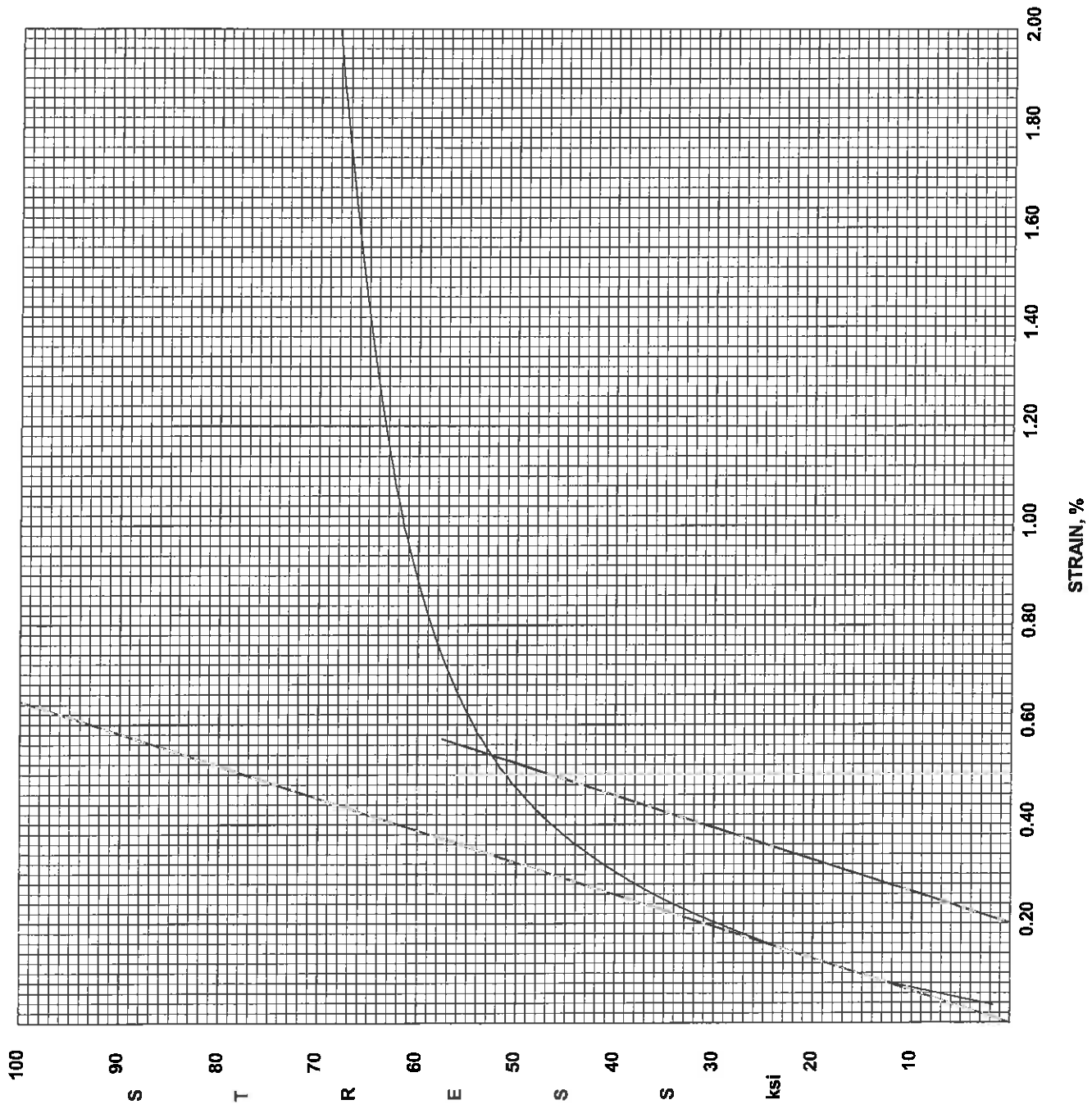


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**Preliminary Results**

Customer: NATIONAL TRANSPORTATION SAFETY  
 Contact: VERBAL-DON K  
 PO: A1 A2 AE  
 Order Ref: 04/14/11  
 Order Ref: JB1104-372  
 TTML Job#: 04/23/2011  
 Test Date: 42  
 Operator: 100M-TeFI-500 .5% EUL & .2% OS  
 Test Setting: A2

Item Reference: A2  
 Sample: 3  
 Width, in: 1.499  
 Thickness, in: 0.373  
 Ult Load, lbf: 45030  
 Tensile, psi: 80500  
 OS .2%, psi: 52500  
 EUL .5%, psi: 51000  
 Elong, %: 32





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42**

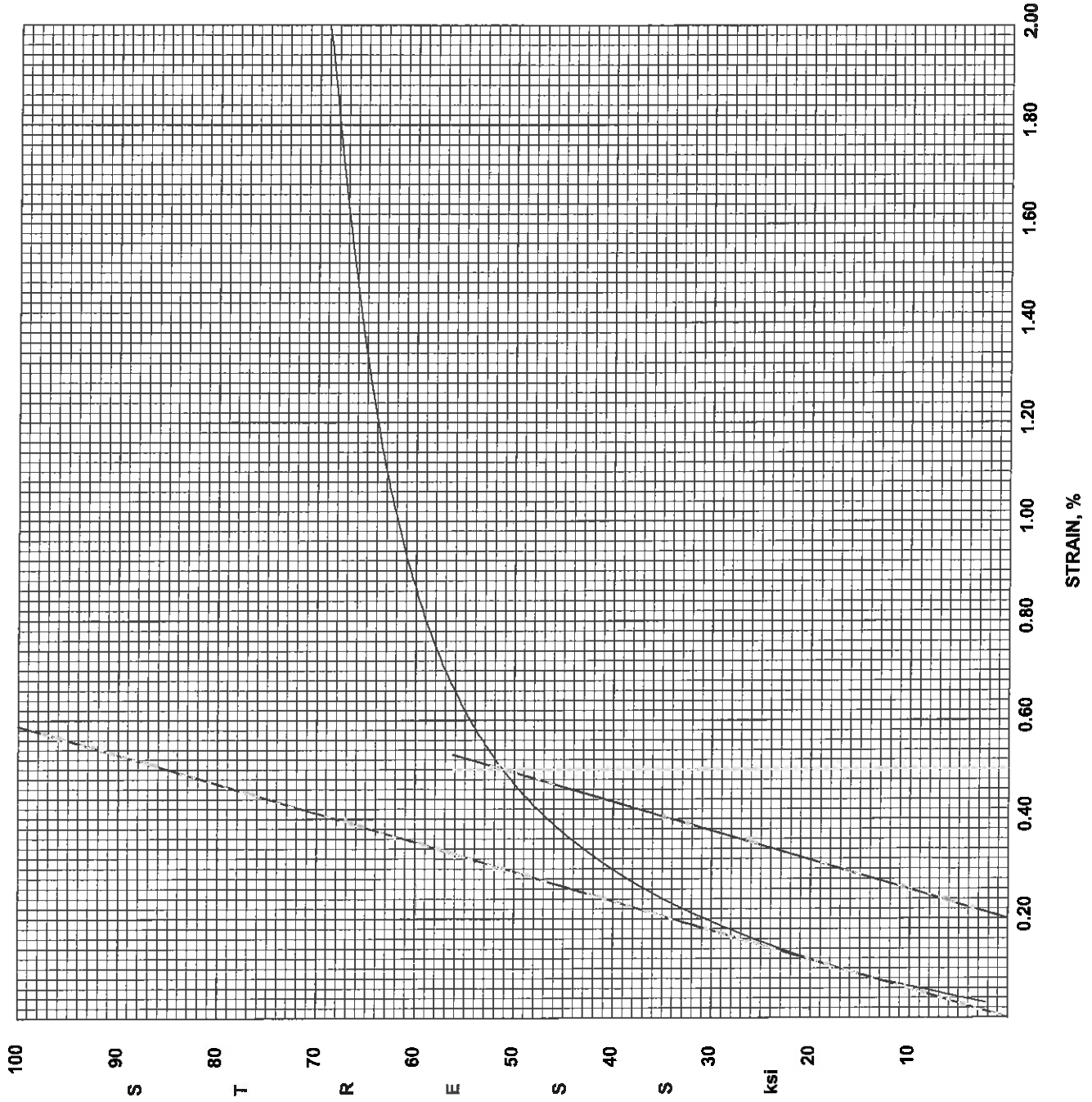
**100M-TeFI-500 .5%  
EUL & .2% OS**

**Customer**  
**Contact**  
**PO**  
**Order Ref**  
**Order Ref**

**TTML Job#**  
**Test Date**  
**Operator**  
**Test Setting**

**Item Reference:**  
**..**  
**..**

**Sample:** 1  
**Width, in:** 1.500  
**Thickness, in:** 0.376  
**Ult Load, lbf:** 46200  
**Tensile, psi:** 82000  
**OS .2%, psi:** 51000  
**EUL .5%, psi:** 51000  
**Elong, %:** 29



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EUL & .2% OS**

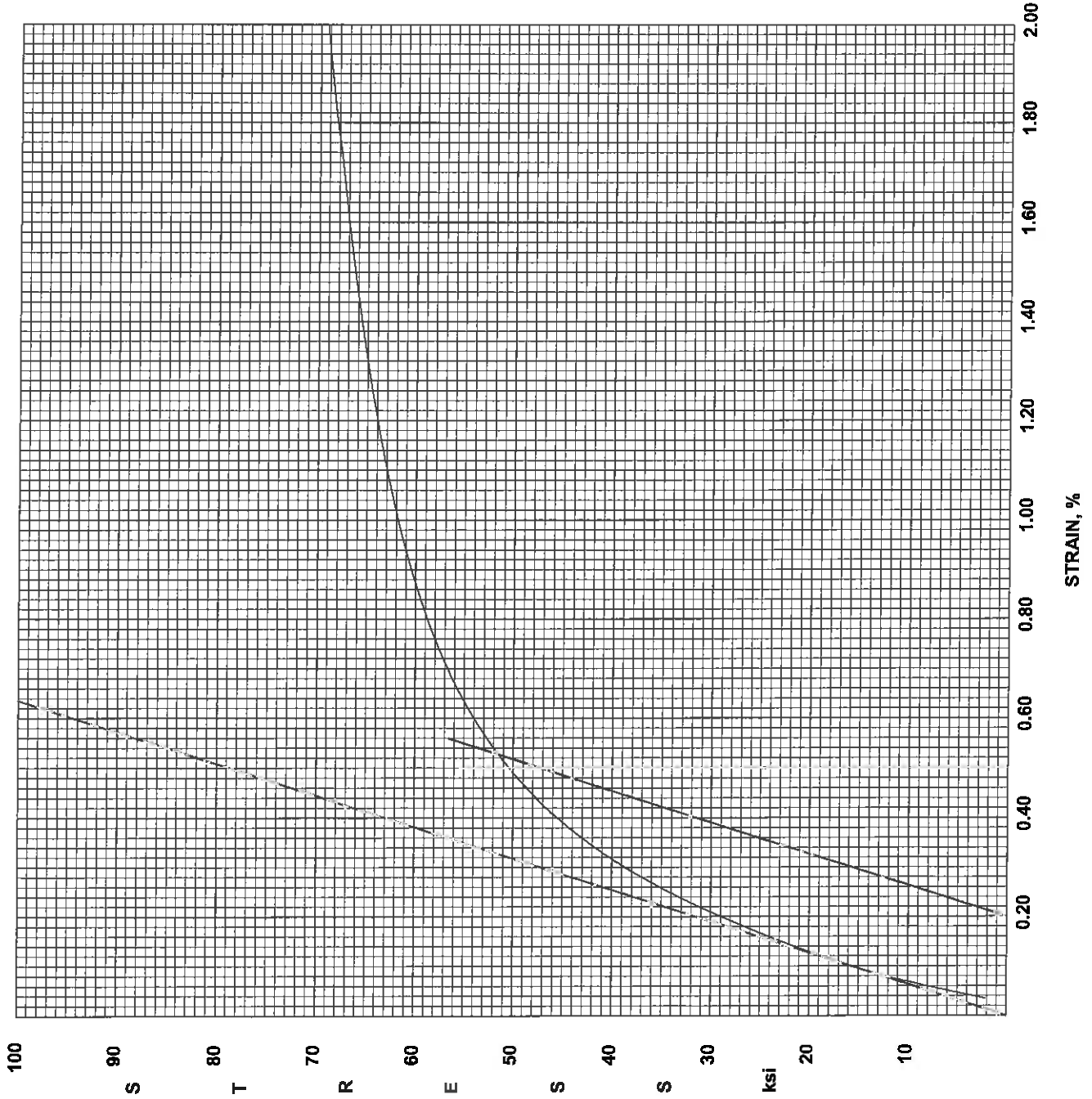
**Customer**  
**Contact**  
**PO**  
**Order Ref**  
**Order Ref**

**TTML Job#**  
**Test Date**  
**Operator**  
**Test Setting**

**Item Reference:** A3

..  
..

**Sample:** 2  
**Width, in:** 1.500  
**Thickness, in:** 0.377  
**Ult Load, lbf:** 46370  
**Tensile, psi:** 82000  
**OS .2%, psi:** 51500  
**EUL .5%, psi:** 50500  
**Elong, %:** 31



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42  
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EUL & .2% OS**

**Customer**  
**Contact**  
**PO**  
**Order Ref**  
**Order Ref**

**TTML Job#**  
**Test Date**  
**Operator**  
**Test Setting**

**Item Reference:** A3

**Sample:** 3  
**Width, in:** 1.499  
**Thickness, in:** 0.376  
**Ult Load, lbf:** 46500  
**Tensile, psi:** 82500  
**OS .2%, psi:** 55000  
**EUL .5%, psi:** 52500  
**Elong, %:** 31

