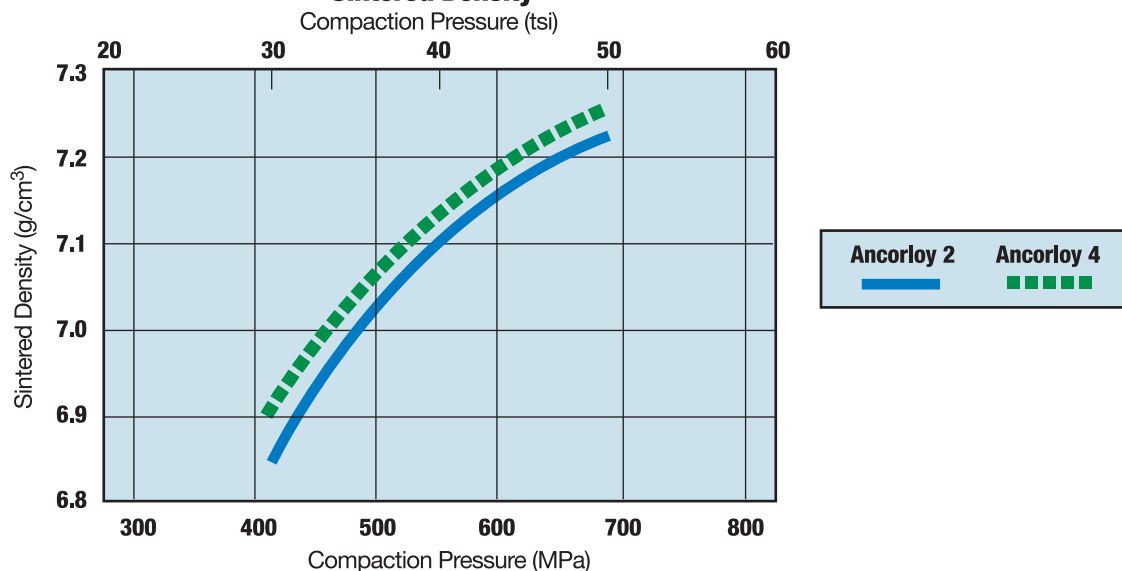


**Ancorloy** is the material designation given to a new product line based on the use of a new Engineered Bonding Technology for high performance applications. Currently there are two products, Ancorloy 2 and Ancorloy 4 in this family. The composition of these binder-treated premixed materials meets the chemical composition limits for the MPIF Material Standard 35 for Material Designations FD-02XX and FD-04XX respectively. The combined carbon level of the finished sintered part can be adjusted through a graphite addition in the premix. Equivalent tensile properties can be achieved with lower graphite additions for the Ancorloy Grades in comparison with the Distaloy 4600A and Distaloy 4800A materials.

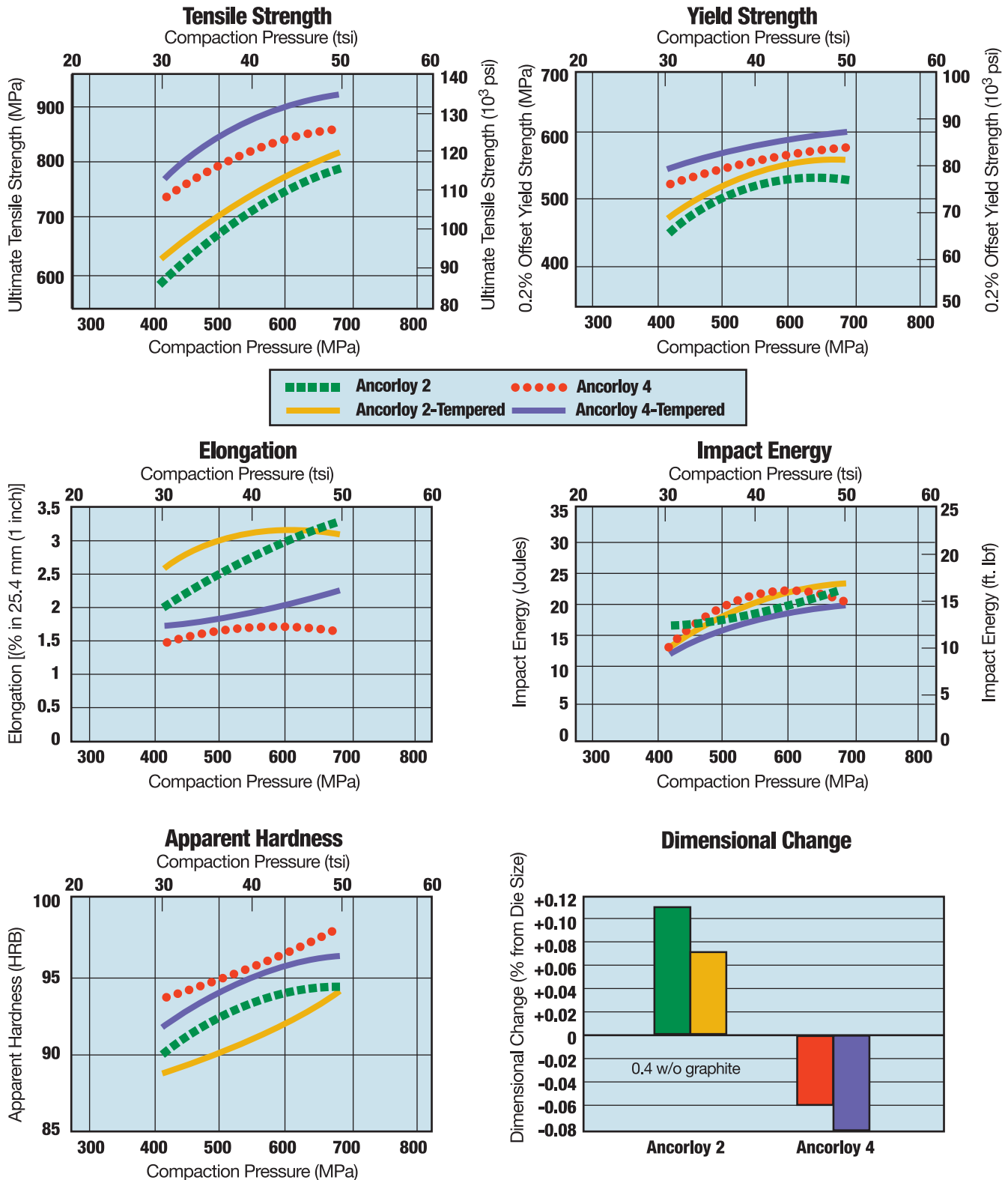
Typical Analysis and Properties	Ancorloy 2	Ancorloy 4
<b>Composition (weight %) (w/o)</b>		
<b>Nickel</b>	<b>1.75</b>	<b>4.0</b>
<b>Copper</b>	<b>1.5</b>	<b>1.5</b>
<b>Molybdenum</b>	<b>0.55</b>	<b>0.55</b>
<b>Apparent Density, g/cm<sup>3</sup></b>	<b>3.24</b>	<b>3.30</b>
<b>Flow Rate, s/50g</b>	<b>28</b>	<b>27</b>
<b>Compressibility at 410 MPa (30 tsi) g/cm<sup>3</sup></b>	<b>6.85</b>	<b>6.85</b>
<b>Green Strength, MPa (psi)</b>	<b>7.2 (1050)</b>	<b>7.2 (1050)</b>

**The Effects of Compaction Pressure on the Density of Sintered Compacts**  
**Sintered Density**



# Ancorloy<sup>®</sup> 2 / Ancorloy<sup>®</sup> 4

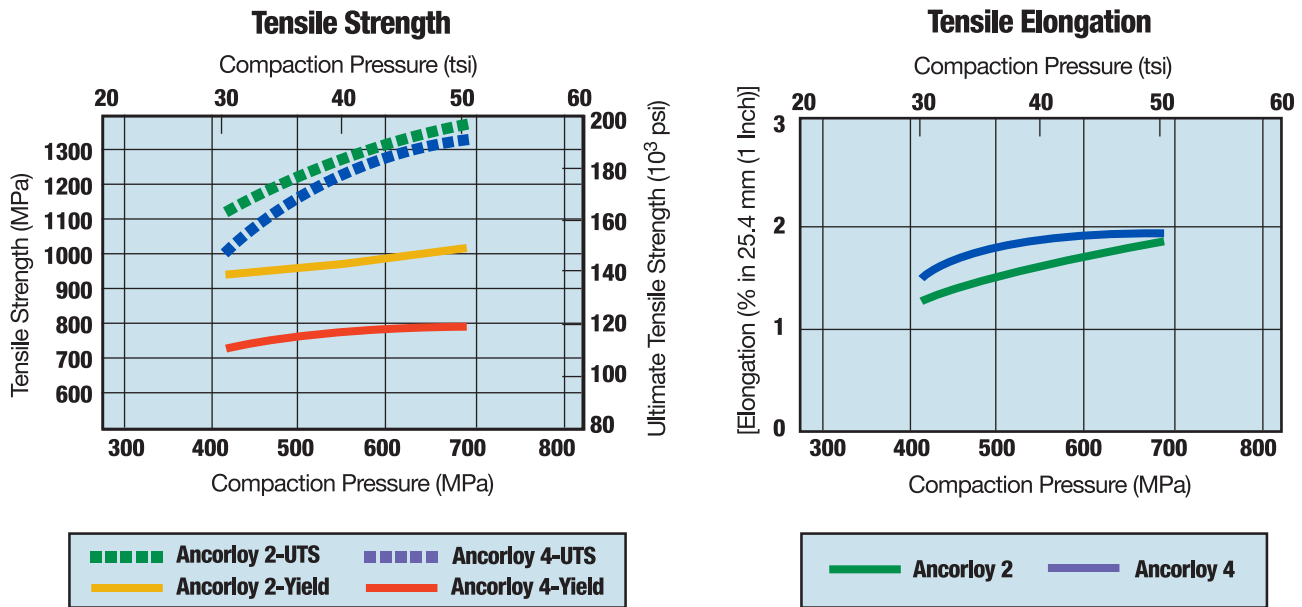
## The Effects of Compaction Pressure on the Mechanical Properties



All test specimens were prepared with 0.6 w/o graphite and were sintered in a 75 v/o Nitrogen-25 v/o Hydrogen gas furnace atmosphere for 30 minutes at a temperature of 1120°C (2050°F). Tempering was done in air at a temperature of 200°C (400°F) for one hour.

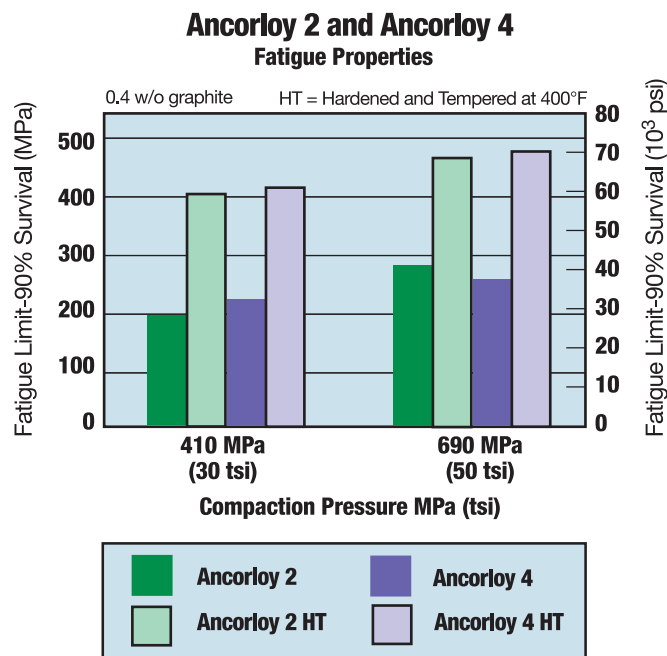
# Ancorloy<sup>®</sup> 2 / Ancorloy<sup>®</sup> 4

## The Effects of Compaction Pressure on the Heat Treated Tensile Properties



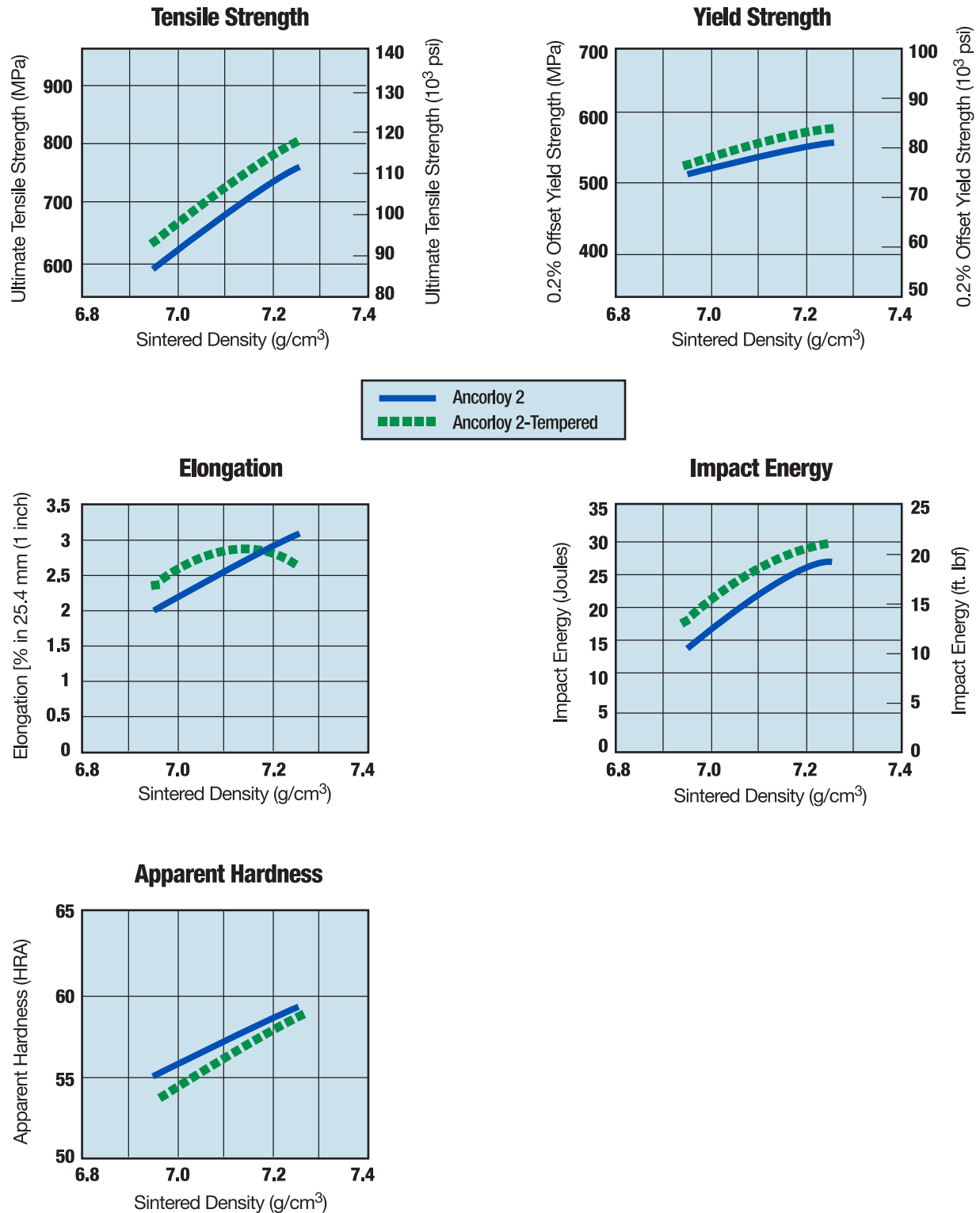
All test specimens were prepared with 0.6 w/o graphite and were sintered in a 75 v/o Nitrogen 25 v/o Hydrogen gas furnace atmosphere for 30 minutes at a temperature of 1120°C (2050°F). The specimens were austenitized at 870°C (1600°F) for 30 minutes in an endothermic gas atmosphere followed by quenching in oil preheated to 60°C (140°F). Tempering was done in air at a temperature of 200°C (400°F) for one hour.

## The Effects of Compaction Pressure on the Fatigue Properties



# Ancorloy<sup>®</sup> 2 / Ancorloy<sup>®</sup> 4

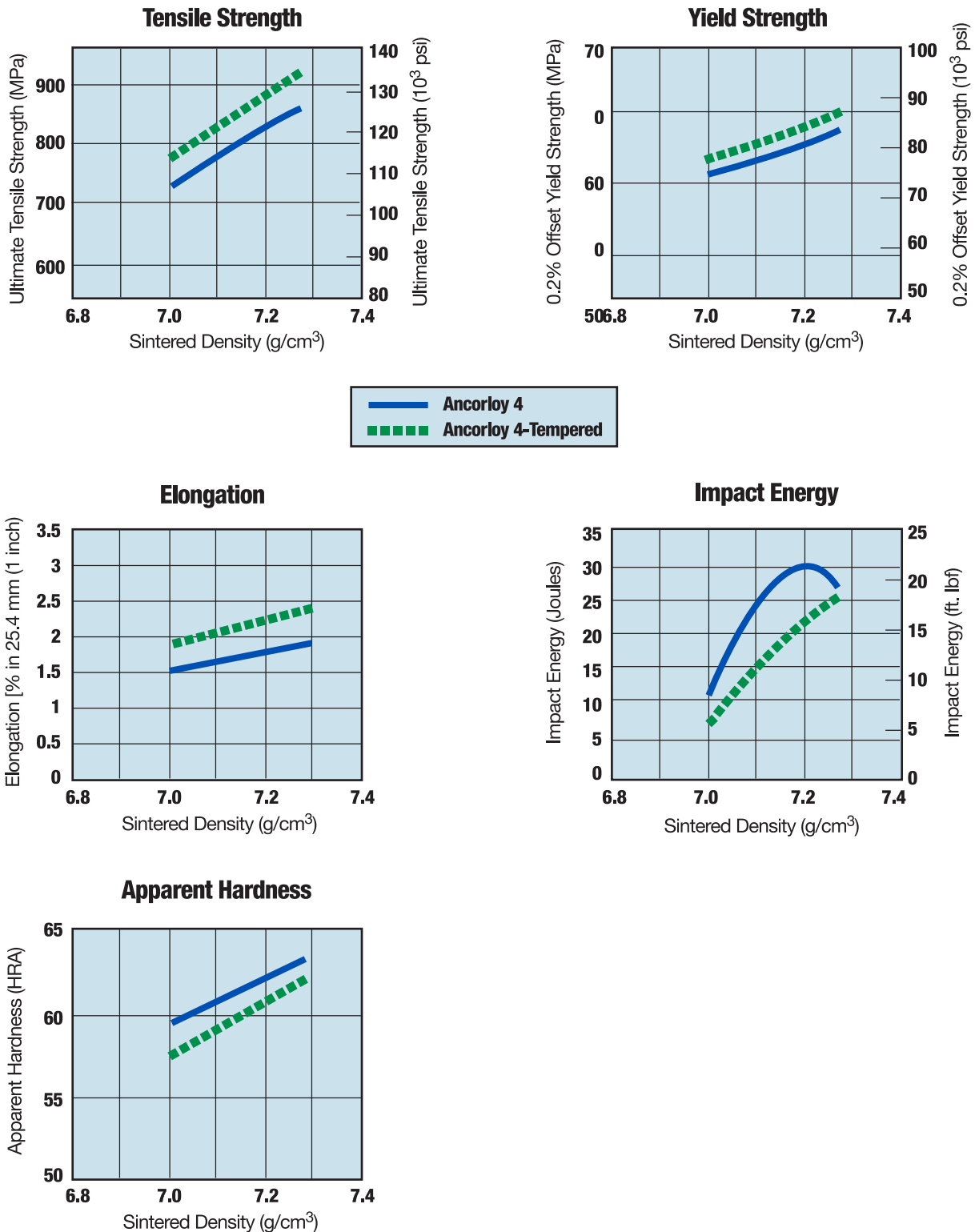
## The Effects of Sintered Density on the Mechanical Properties



All test specimens were prepared with 0.6 w/o graphite and were sintered in a 75 v/o Nitrogen-25 v/o Hydrogen gas furnace atmosphere for 30 minutes at a temperature of 1120°C (2050°F). Tempering was done in air at a temperature of 200°C (400°F) for one hour.

# Ancorloy<sup>®</sup> 2 / Ancorloy<sup>®</sup> 4

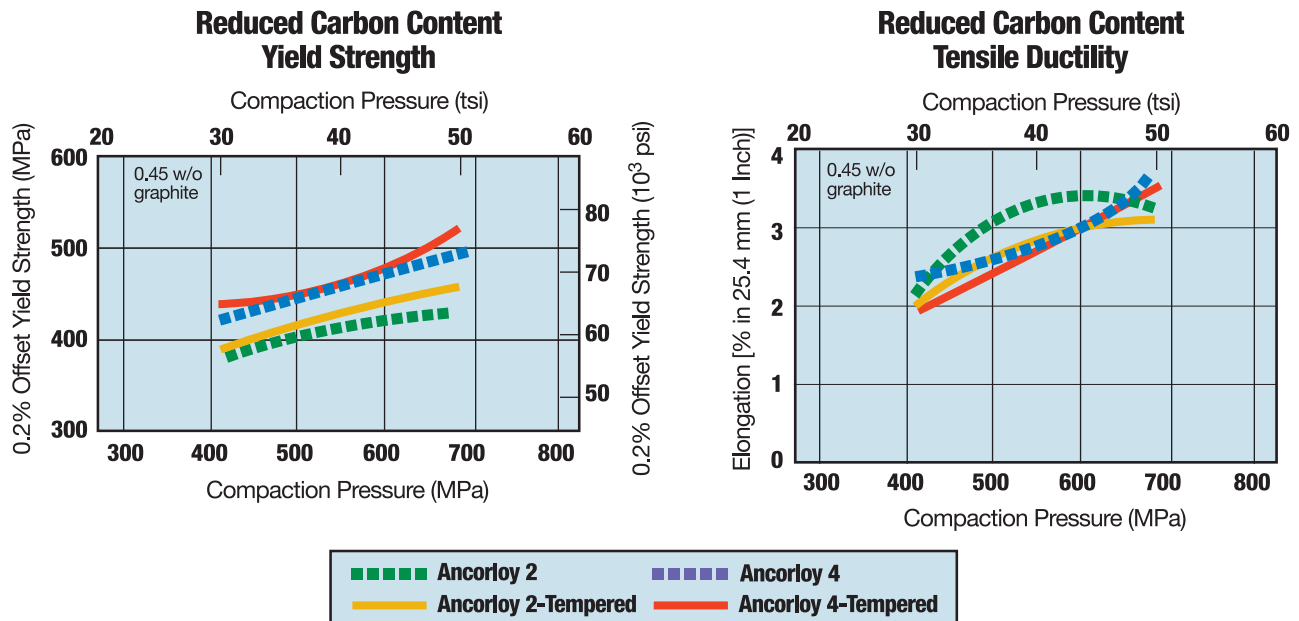
## The Effects of Sintered Density on the Mechanical Properties



All test specimens were prepared with 0.6 w/o graphite and were sintered in a 75 v/o Nitrogen-25 v/o Hydrogen gas furnace atmosphere for 30 minutes at a temperature of 1120°C (2050°F). Tempering was done in air at a temperature of 200°C (400°F) for one hour.

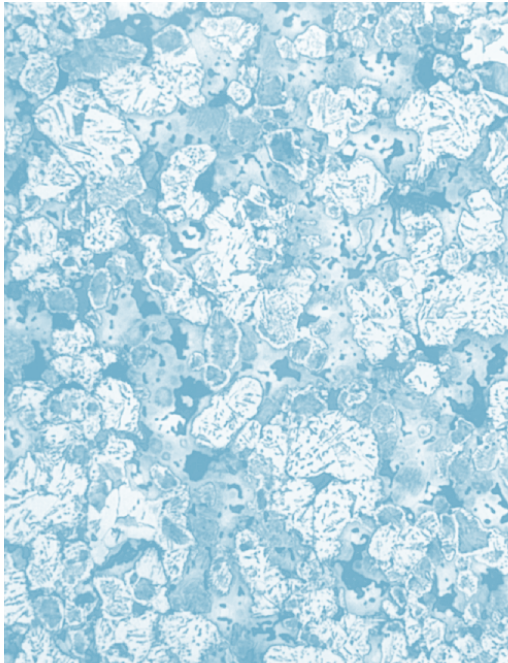
# Ancorloy<sup>®</sup> 2 / Ancorloy<sup>®</sup> 4

## The Effects of Compaction Pressure on Tensile Properties

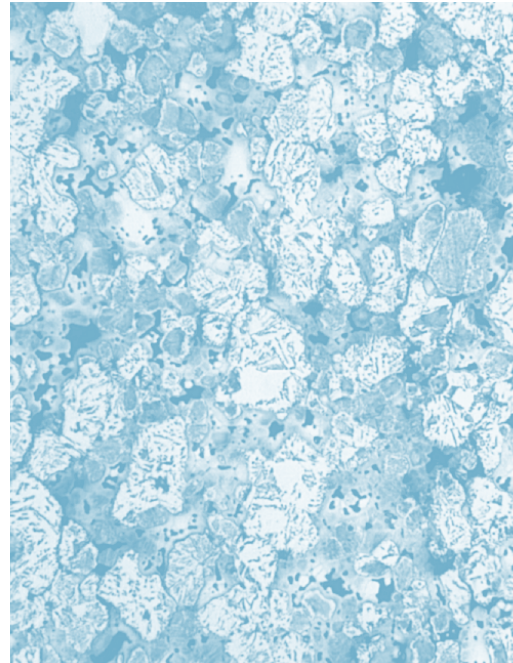


All test specimens were prepared with 0.45 w/o graphite and were sintered in a 75 v/o Nitrogen-25 v/o Hydrogen gas furnace atmosphere for 30 minutes at a temperature of 1120°C (2050°F). Tempering was done in air at a temperature of 200°C (400°F) for one hour.

### Ancorloy 2



### Ancorloy 4



### Original Magnification 200X

Typical Microstructure of Ancorloy with 0.45 w/o graphite after compaction at 550 MPa (40 tsi) and sintered at 1120°C (2050°F).

**IMPORTANT NOTICE:** The data shown are based on laboratory processing standard test specimens. Results may vary from that obtained in production processing.