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**TRU TEMP® 2<sup>nd</sup> Gen Low Temperature Black Oxide (Patent pending)**  
Operating Instructions

**PRODUCT DESCRIPTION**

TRU TEMP® 2<sup>nd</sup> Gen Low Temperature Black Oxide Process operates at 200 – 210° F and forms a durable black oxide finish on all iron alloys, including tool steels.

The TRU TEMP® 2<sup>nd</sup> Gen is used as part of a two-stage chemical reaction, beginning with the activation of the surface with OXYPRIME®, which is then oxidized to form the black magnetite finish. The black finish can be sealed with an appropriate rust preventive topcoat for optimum appearance and corrosion resistance.

Coating conforms with all standard black oxide specs:  
MIL-DTL-13924F Class 1  
AMS 2485L  
ASTM D769  
ISO11408

**OPERATING CONDITIONS**

Bath Make-Up	TRU TEMP® 2 <sup>nd</sup> Gen at 50%, by volume, in tap water.
Operating Temperature	200 – 210° F.
Equipment Construction	Tank: Mild steel, with 1 – 2” insulation. Heater: 304 stainless immersion heater. - Use 200 watts per gallon of bath. Racks, baskets, barrels: Mild steel, Polypro.

Bath Circulation	Desirable. Use a stainless steel pump or impeller.
Ventilation	Desirable (fumes have no chemical content)
Refill of Evaporative Losses	Desirable: Deionized or RO purified water.
CAUTION	Keep all forms of copper, brass, zinc & aluminum out of the bath.

## **BLACKENING PROCEDURES**

The TRU TEMP® 2<sup>nd</sup> Gen Low Temperature Black Oxide process utilizes the following sequence:

1. **CLEAN** the parts in SAFE SCRUB® ST, mixed at 10-20% v/v and operated at 150° F. Typical immersion time of 8 minutes.
2. **RINSE** in clean flowing water; 30 seconds.
3. **ACTIVATE** in OXYPRIME® solution; Room Temp; 0 – 10 minutes.
4. **RINSE** in clean flowing water; 30 seconds.
5. **BLACKEN** in TRU TEMP® 2<sup>nd</sup> gen bath; 200 – 210° F; 15 – 30 minutes.
6. **RINSE** in clean flowing water; 30 seconds.
7. **SEAL** in a rust preventive topcoat appropriate to the end use of the article:  
Use DRI TOUCH® AMBER IRP2 solvent-based sealant for dry-to-touch finish or use SHEATH® WS12 water-soluble oil (at 15% by volume; 130° F), for oily finish.

## **BATH MAINTENANCE**

As the TRU TEMP® bath operates, its concentration will gradually diminish. In addition, there will be a significant loss of water to evaporation. Both these components must be replaced in order to keep the bath operating normally. Normal maintenance calls for daily additions of clean water (DI or RO water is preferred) with stirring, to restore normal operating levels. Then, the bath can be titrated for total alkalinity, or tested with the Go/No Go Test Kit, to determine the strength of the solution and the quantity of replenishment needed.

**CAUTION:** Keep all forms of copper, brass, zinc and aluminum out of the tank.

***Before Using This Product – Please Read, Understand and Follow all the Precautions shown on the Product Label and on the Safety Data Sheet.***

**The Safety Data Sheet can be found on our website:**

**<https://www.birchwoodtechnologies.com/Downloads/Safety.html>**

**Use Appropriate Warning Labels on any Container used to Store or Apply this Product.**

**NOTE:** The information contained herein is provided in good faith and is believed to be correct as of the date below. However, Birchwood Laboratories LLC makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular purpose. Accordingly, Birchwood Laboratories LLC will not be responsible for damages of any kind resulting from the use of or reliance upon such information.

TRU TEMP® 2<sup>nd</sup> Gen Black Oxide Concentrate (Product Numbers 611451, 611458, 611490)

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