

TUNGSTEN ELECTRODES + CHEM SHARP

Did you know...? Tungsten has the highest melting point of all metals, 6170° F

When comparing Lanthium and Thorium as ingredients in today's tungsten welding electrodes, any discussion must begin with the following warning from the AWS Project Committee on Fumes and Gases.

It states: "Thorium oxides are found in Thoriated tungsten electrodes up to 4.2%. Thorium is radioactive and may present hazards by external and internal exposure. If alternatives are technically feasible, they should be used." Furthermore, Thorium has been identified as a carcinogen by the National Toxicology Program and the International Agency for research on Cancer.



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NON-RADIOACTIVE ALTERNATIVES TO 2% THORIATED TUNGSTEN

2% Lanthanated tungsten is great because it requires 10-15% less amperage to arc start and maintain than thoriated electrodes and it lasts very well with numerous ignitions or with the thermal shock of pulsing. Also, plasma welders have had particularly good results with 2% Lanthanated tungsten.

TRI MIX™ is particularly good at applications where longer weld cycles are a part of the process, because it holds its point geometry through more welding time than any tungsten we know of. Also, the conductivity of TRI MIX™ is very similar to 2% Thoriated tungsten so it is an easy swap out with little or no weld program changes required.

A little History... The word tungsten "TUNGSTEN" means "Heavy Stone" in Swedish. The chemical symbol is "W" which stands for Wolfram. The name came from medieval German smelters who found that tin ores containing tungsten had much lower yield. It was said that the tungsten devoured the tin "like a wolf". Pure tungsten was first isolated by two Spanish chemists, the d'Elhujar brothers, in 1783. GTAW (Gas Tungsten Arc Welding), or more commonly called TIG Welding, requires the use of an electrode made from TUNGSTEN.

SELECTION CHART – TUNGSTEN

TUNGSTEN, 7" X (DIAMETER)		.020" Dia.		.040" Dia.		1/16" Dia.		3/32" Dia.		1/8" Dia.		5/32" Dia.	
MATERIAL	BAND COLOR	Part No.	Price Ea.	Part No.	Price Ea.	Part No.	Price Ea.	Part No.	Price Ea.	Part No.	Price Ea.	Part No.	Price Ea.
PURE	GREEN	TP020	\$1.00	TP040	\$1.05	TP116	\$1.60	TP332	\$2.99	TP018	\$5.25	TP532	\$8.00
2% THORIATED	RED	TT020	\$1.50	TT040	\$1.55	TT116	\$2.00	TT332	\$3.75	TT018	\$5.90	TT532	\$11.00
1% ZIRCONIATED	BROWN	TZ020	\$1.80	TZ040	\$1.90	TZ116	\$3.10	TZ332	\$6.00	TZ018	\$10.00	TZ532	\$15.99
2% LANTHANATED	BLUE	N/A	N/A	TL040	\$2.40	TL116	\$2.90	TL332	\$5.90	TL018	\$10.00	TL532	\$15.99
2% CERIATED	ORANGE	N/A	N/A	TC040	\$1.35	TC116	\$1.99	TC332	\$4.15	TC018	\$6.85	TC532	\$10.10
TRI-MIX	TAN	N/A	N/A	TM040	\$2.20	TM116	\$2.70	TM332	\$5.50	TM018	\$9.25	TM532	\$15.00

GROUND FINISH



WHEN WELDING IN:
DIRECT CURRENT
(DC)

WHEN WELDING IN:
ALTERNATING CURRENT
HIGH FREQUENCY (ACHF)

IN:
Reverse
Polarity

IN:
Straight
Polarity

IN:
Unbalanced
Wave

IN:
Unbalanced
Wave

IN:
balanced
Wave

IN:
balanced
Wave

RECOMMENDED CUP, NOZZLE, CURRENT AND AMPERAGE

SET AMPERAGE AT:

ELECTRODE DIAMETER	USE CUP OR METAL	IN:	IN:	IN:	IN:	IN:
INCH (MILLIMETERS)	NOZZLE No. GAS CUP ID (MILLIMETERS)	Reverse Polarity	Straight Polarity	Unbalanced Wave	Unbalanced Wave	balanced Wave
.040" – (1.00mm)	6 – (9.5)	15 – 80		10 – 60	50 – 80	20 – 30
1/16" – (1.60mm)	6 – (9.5)	70 – 150	10 – 20	50 – 100	70 – 150	30 – 80
3/32" – (2.40mm)	6, 8 – (12.7)	150 – 250	15 – 30	100 – 160	140 – 235	60 – 130
1/8" – (3.20mm)	8 – (12.7)	250 – 400	25 – 40	150 – 210	225 – 325	100 – 180
5/32" – (4.00mm)	8 – (12.7)	400 – 500	40 – 55	200 – 275	300 – 400	160 – 240
3/16" – (4.80mm)	8, 10 – (16.9)	500 – 750	55 – 80	250 – 350	400 – 500	190 – 300
1/4" – (6.40mm)	10, 12 – (19.0)	750 – 1000	80 – 125	325 – 450	500 – 630	250 – 400

CHEM-SHARP



CHEM SHARP GIVES A PERFECT POINT EVERYTIME
CHEMICALLY POINTS TUNGSTEN WITHOUT GRINDING

Chem Sharp

Chemical Sharpener for Tungsten Electrodes

Part No. DF-600

\$11.95 Ea

5 Ounce Jar
Over 500 SHARPENINGS
PER JAR



Procedure: Extend tungsten end out about 1" beyond cup. Short out tungsten against ground clamp or workpiece until end glows cherry red approximately 3/8" from tip. Quickly immerse the heated tip approximately 1/4" deep into the CHEM SHARP repeatedly until the point is formed.