

## Tungsten WLa20 - 2% Lanthanum Oxide

Lanthanated Tungsten | Premium Grade for Intensive 24/7 Production

RWMA CLASS 13

BLUE (ISO 6848)

PREMIUM GRADE

Reference Standard: ISO 6848:2015 - Arc welding and cutting - Nonconsumable tungsten electrodes - Classification

AWS Equivalent: AWS A5.12/A5.12M - Specification for Tungsten and Oxide Dispersed Tungsten Electrodes for Arc Welding and Cutting

**MAXIMUM ELECTRODE LIFE:** WLa20 contains the highest lanthanum oxide content available, providing maximum electrode life for the most demanding 24/7 production environments. Ideal for OEMs running continuous shifts where downtime for electrode changes must be minimized.

## CHEMICAL COMPOSITION

Tungsten (W)	Balance (≈97.9%)
Lanthanum Oxide (La <sub>2</sub> O <sub>3</sub> )	1.80 - 2.20%
Other Oxides	≤0.10%
Impurities	≤0.10%

## IDENTIFICATION

AWS Designation	EWLa-2
ISO Designation	WLa20
Color Code (ISO 6848)	Blue
RWMA Classification	Class 13 (Group B)

## PHYSICAL PROPERTIES

Property	Value	Unit
Density	18.9	g/cm <sup>3</sup>
Melting Point	3,360	°C
Electrical Conductivity	≥30	% IACS
Thermal Conductivity	140	W/m·K
Work Function	2.5	eV

## RECOMMENDED APPLICATIONS

- Intensive 24/7 production** - Continuous shift operations requiring maximum uptime
- High-cycle contactor welding** - >50,000 welds/shift
- Automotive Tier 1 suppliers** - Where electrode change intervals are critical
- Battery tab welding** - EV battery module assembly at high volumes
- Premium contact welding** - Where weld quality consistency is paramount

## LANTHANATED TUNGSTEN SERIES - LIFE COMPARISON:

Grade	La <sub>2</sub> O <sub>3</sub> %	Color	Relative Life	Cost
WLa10	1.0%	Black	100% (baseline)	\$
WLa15	1.5%	Gold	115-120%	\$\$
<b>WLa20</b>	<b>2.0%</b>	<b>Blue</b>	<b>130-140%</b>	<b>\$\$\$</b>

### ADVANTAGES OF WLa20:

- **Maximum electrode life** - 30-40% longer than WLa10 in high-cycle applications
- **Lowest work function** (2.5 eV) - easiest electron emission, best arc starting
- **Superior arc stability** - most consistent weld quality in extended runs
- **Non-radioactive** - Safe for all environments, no special handling
- **Reduced downtime** - Fewer electrode changes = higher productivity
- **Best total cost of ownership** for 24/7 operations

**COST-BENEFIT ANALYSIS:** While WLa20 has a higher unit cost than WLa10 or WLa15, the extended electrode life often results in lower total cost per weld in high-volume applications. Calculate your cost-per-weld based on:

- Electrode cost / expected welds per electrode
- Downtime cost for electrode changes
- Labor cost for maintenance

For operations with >20,000 welds/day, WLa20 typically provides the best ROI.