



MATERIAL SAFETY DATA SHEET

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SECTION I PRODUCT IDENTIFICATION TUNGSTEN AND TUNGSTEN/RHENIUM ALLOYS

SECTION II HAZARDOUS INGREDIENTS Defined by OSHA 29 CFR 1910.1200

| Element | CAS No. | PEL-TWA | STEL | Element | CAS No. | PEL-TWA | STEL |
|----------|-----------|---------|------|---------|-----------|---------|------|
| Tungsten | 7440-33-7 | 5 | 10 | Rhenium | 7440-15-5 | N | N |

LEGEND: **PEL** Permissible Exposure Limits (mg/m³).
TWA Time Weighted Average (mg/m³), the transitional **PELS** are 8 hour TWA's.
STEL Short Term Exposure Limit (mg/m³) duration is 15 minutes.
C Ceiling Limit (mg/m³). **D** - Dust (mg/m³).
F Fume (mg/m³). **N** - Not available.

Trade Name and Nominal Compositions (Expressed in %)

| Trade Name | Type | Ni | Cr | Fe | Mn | Si | Al | Cu | Co | W | Re |
|------------------|--------------|----|----|----|----|----|----|----|----|-----|----|
| Tungsten | W | | | | | | | | | 100 | |
| Tungsten-Rhenium | W3Re | | | | | | | | | 97 | 3 |
| Tungsten-Rhenium | W5Re | | | | | | | | | 95 | 5 |
| Tungsten-Rhenium | W25Re, W26Re | | | | | | | | | 74 | 26 |

SECTION III PHYSICAL DATA

All materials produced are solid rod, wire, strip or ribbon. Insoluble in water, acids and bases. Soluble in hydrofluoric acid or a base in combination with a strong oxidizer.

SECTION IV FIRE AND EXPLOSION DATA

Non-flammable, although sparks from grinding or welding may ignite flammable or combustible materials.

SECTION V REACTIVITY INFORMATION

The metals listed in Section II may form reaction products such as oxides, dust or fumes during grinding or welding. While other reaction products are possible, they cannot be classified simply; they can vary depending on the particular application, atmospheres, and coatings used.

SECTION VI HEALTH HAZARD INFORMATION

This product poses no health hazard in the solid form. However, grinding powder or welding fumes generated from this product may pose a potential health hazard. OSHA has determined that the potential effects of overexposure resulting from the welding or grinding of this product are as follows.

Aggravation: Some workers may experience discomfort at concentrations below the permissible exposure limits and others may be affected by a pre-existing condition or other occupational illness because of the wide variation in individual susceptibilities.

Primary Route of Entry: Fumes, gases and dust can be a health hazard through inhalation. Skin sensitivity may also be noted upon contact.

Acute Exposure: Irritation to the nose, eyes, throat, or skin, nausea, tightness of chest, or slight discomfort such as dizziness.

Chronic Exposure: Exposure to dust and fumes during welding or grinding may cause irritation of eyes and throat. Eye contact may cause irritation due to the abrasion. NIOSH REL: TWA 5 mg/m³, ST 10 mg/m³

First Aid: Inhalation: Move to fresh air; **Skin:** Wash affected area with soap and water;

Eyes: Immediately wash with large amounts of water, wash for at least 15 minutes;

Ingestion: Seek medical attention. In all cases, seek medical attention for first aid.

SECTION VII SPILL OR LEAK PROCEDURE

Grinding dusts, welding fume and chemical cleaning solution generated from this material must be disposed of in accordance with proper regulatory agencies.

SECTION VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection: Required when exposed to levels that exceed those established by OSHA when grinding or welding. Use only NIOSH approved respirators.

Ventilation: Required when the exposure levels exceed those established by OSHA when grinding or welding.

Eye Protection and Protective Clothing: Protect yourself and others. Use only NIOSH approved gloves, face shields and protective clothing where required.

SECTION IX SPECIAL PRECAUTIONS

Important: Practice proper industrial hygiene to insure that the use of this material does not generate grinding dusts or welding fumes in excess of OSHA limits. Consult the Federal Register, 29CFR 1920.1200 for further explanation of terms and abbreviations used in this material safety data sheet.

**SECTION X SARA TITLE III (Section 313, Toxic
Chemicals)**

Notification: The **Concept Alloys** products listed in Section II of this Material Safety Data Sheet **do not** contain toxic chemicals subject to the reporting of Section 313 of **Title III** of the Superfund Amendments and Reauthorization ACT of 1986 and 40CFR Part 372 of the Federal Register

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