Ultra Metal Powders

GENERAL PRODUCT INSTRUCTIONS

HANDLING, TRANSPORT, STORAGE AND USE
METAL, ALLOY, COMPOSITE AND ENGINEERED POWDERS

IMPORTANT: These instructions apply generally to powder products supplied by Ultra Metal Powders Sp. z o.o. and supplement the current product-specific Safety Data Sheet (SDS), product label, Certificate of Analysis and written Product Specification. Product-specific documents may contain additional or more restrictive requirements. In the event of a conflict, applicable law, the SDS, the label and the agreed Product Specification take precedence.

SECTION 1: General information and scope

1.1 Scope and product identification

Scope	All metal, alloy, metal-matrix composite, coated, modified and surface-engineered powder products supplied by Ultra Metal Powders Sp. z o.o., unless product-specific documentation expressly states otherwise.
Product identification	Product name, composition, particle size range and other product-specific characteristics are defined by the product label, written Product Specification and Certificate of Analysis, as applicable.
Safety classification	Hazard classification, protective measures, incompatibilities, transport requirements and disposal information are defined by the current product-specific Safety Data Sheet (SDS).
Intended users	Qualified industrial and professional personnel only.

1.2 Scope and general responsibilities

Products covered by these instructions are supplied for professional and industrial use. They must be handled only by trained personnel using suitable equipment, workplace controls and personal protective equipment as specified in the current product-specific SDS, product label and workplace risk assessment.

- Observe all safety instructions, hazard statements and precautionary measures shown on the product label and in the applicable SDS.
- Use the powder only for its intended and technically validated purpose. The user is responsible for determining suitability for the selected machine, process and final application.
- Promptly inform Ultra Metal Powders of any suspected product defect, packaging failure or hazardous incident occurring despite correct handling.
- Ultra Metal Powders accepts no responsibility for damage, loss of quality or process failure resulting from improper use, incorrect storage, contamination, unqualified reuse or handling contrary to these instructions, except where liability cannot be excluded under applicable law.

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1.3 General powder characteristics

Metal powder condition, flowability and homogeneity can be affected by settling, compaction, moisture or oxygen exposure, contamination and mechanical handling. Handle each product in a manner that preserves its specified particle condition and properties. Product-specific characteristics and acceptance criteria are defined by the applicable Product Specification and Certificate of Analysis.

Transport and storage can cause settling or compaction of the powder bed. Where redistribution is appropriate, use gentle, low-energy handling of the sealed container. Avoid aggressive shaking, dropping or tumbling unless such treatment has been specifically validated for the product.

SECTION 2: Handling and sampling

2.1 Work area and personnel

- Handling is permitted only by qualified personnel familiar with metal powder risks and the applicable product-specific SDS.
- Open and handle containers in a dry, clean, dust-controlled area protected from drafts. Use local exhaust ventilation or a closed powder-handling system where dust may be generated, as required by the SDS and workplace risk assessment.
- Use clean, dry and electrically grounded equipment where appropriate. Eliminate ignition sources and prevent electrostatic discharge in accordance with the applicable SDS and workplace controls.
- Wear appropriate gloves, protective clothing, eye protection and respiratory protection as required by the SDS and workplace risk assessment.

2.2 Acclimatization and opening

- Before opening, allow the sealed container to reach conditions sufficiently close to the intended work area to avoid condensation on or inside the packaging. Follow any product-specific temperature or humidity limits stated in the applicable documentation.
- If the container is significantly colder or warmer than the work area, keep it sealed until it has adequately acclimatized. Do not open packaging where condensation is present or reasonably expected.
- Some products may be supplied under a protective or controlled atmosphere, as indicated by the applicable product documentation or packaging. Opening the container may alter or destroy this atmosphere; therefore minimize the time the container remains open.
- Use opened product promptly. Where preservation of a protective atmosphere is required, reseal the container using a suitable clean packaging method and the dry inert gas or other atmosphere specified for the particular product.
- Where oxygen or moisture content is critical to product quality, process performance or chemical analysis, sampling and further handling should be performed under controlled or inert atmosphere where appropriate.

2.3 Sampling and transfer

- Sampling should preferably be carried out in the customer's quality assurance laboratory or another suitably controlled area.
- Use clean, dry and non-contaminating tools suitable for the product being handled. Where cross-contamination may affect product quality or process performance, use dedicated equipment or verify adequate cleaning before use.
- Do not return sampled, spilled or potentially contaminated material to the original container.
- Avoid pouring from excessive height, compressed-air cleaning and any operation that creates an uncontrolled airborne dust cloud.

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2.4 Special considerations for engineered, coated and composite powders

Certain products may incorporate surface modifications, coatings, embedded particles, composite phases or other engineered particle features. Mechanical processing can alter these features and may change powder properties or performance. Unless specifically validated for the particular product and application, avoid operations capable of materially modifying the powder surface or particle architecture, including:

- ball milling, attritor milling or other high-energy mixing;
- aggressive tumbling, prolonged high-shear blending or ultrasonic powder treatment;
- abrasive pneumatic conveying, repeated impact-based classification or forceful de-agglomeration;
- repeated or aggressive sieving that may alter particle morphology, surface condition or engineered particle features.

If sieving is required, use a clean and dry method appropriate to the product and validate that the selected mesh, vibration level, energy input and processing time do not adversely affect particle size distribution, flowability, morphology, surface condition or other specified characteristics.

2.5 Reuse and process qualification

- Do not blend a product with other powders, virgin powder or process-return powder unless the blend, mixing procedure and resulting material have been formally qualified for the intended use.
- Powder recovered from a machine or processing system should be requalified before reuse. Appropriate checks may include particle size distribution, flowability, apparent density, oxygen or moisture condition where relevant, contamination and, for engineered products, representative assessment of surface or particle architecture.
- The customer is responsible for defining maximum reuse cycles, requalification methods and acceptance criteria for the specific machine, process and application.

SECTION 3: Transport

3.1 Packaging and transport conditions

- Transport the product in its original, tightly sealed and correctly labelled packaging. Keep containers in the orientation specified for the packaging and protect them from moisture, direct sunlight, strong vibration, impact, puncture and deformation.
- Comply with the transport classification and requirements stated in the current product-specific SDS and all applicable national and international regulations.
- Dynamic stacking loads must comply with the packaging manufacturer's specifications. Do not stack containers in a way that deforms lids, seals or container walls.
- If the customer selects, replaces or repackages the product, the customer is responsible for verifying that the packaging, labelling and contents comply with applicable transport regulations and are suitable for the intended transport route and product.

3.2 Air transport and pressure changes

Unless explicitly stated otherwise, powder packaging is not designed as a pressure vessel. During air transport, pressure differences may affect packaging seals and, where a protective atmosphere is present, may allow gas to escape or otherwise disturb that atmosphere. Air transport can therefore change the internal atmosphere and may increase the risk of oxygen or moisture ingress.

- After air transport, inspect the container, lid, tamper-evident seal and label before use.
- Quarantine the product and contact Ultra Metal Powders if the container is swollen, deformed, unsealed, damaged, wet or otherwise compromised.
- Do not open a cold or hot container immediately after transport; follow the acclimatization principles in Section 2.2 and any product-specific requirements.

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SECTION 4: Storage

4.1 Storage environment

- Store in a dry, clean and dust-controlled area protected from sunlight, precipitation, condensation and sources of contamination.
- Maintain stable storage conditions within any limits stated in the applicable SDS or product-specific documentation. Avoid rapid or repeated temperature cycling that may promote condensation or affect powder condition.
- Keep the product separated from incompatible materials identified in the applicable product-specific SDS.
- Store containers on a stable, dry surface or suitable pallet. Prevent direct contact with wet floors and avoid locations subject to vibration, impact or frequent temperature cycling.

4.2 Protective atmosphere and container integrity

Where a product is supplied under a protective or controlled atmosphere, intact packaging and seals help protect the powder from oxidation, moisture uptake and contamination. Keep containers tightly closed and preserve the original tamper-evident seal until first use.

- Check containers periodically for corrosion, cracking, distortion, leakage, damaged lids or broken seals.
- Static stacking loads depend on container type, gross weight, number of layers, pallet configuration, ambient temperature and storage duration. Follow the packaging manufacturer's limits.
- Do not use product from a container with a broken or compromised seal unless its identity, condition and suitability have been confirmed through an appropriate quality review.

4.3 Opened containers

- Record the opening date, remaining quantity and any resealing operation where required by the customer's quality system.
- Minimize the number and duration of opening cycles. Reseal promptly using a clean method suitable for the product. Where a controlled atmosphere is required, restore it using the dry inert gas or other method specified for the particular product.
- Keep sealing surfaces clean and free from powder. Do not use damaged lids, liners or seals.
- Quarantine the powder if there is evidence of moisture, oxidation, unusual colour change, contamination, impaired flow, packaging damage or any other condition that may affect conformity.

SECTION 5: Cleaning, spillage and disposal

5.1 Cleaning and spill response

- Follow the accidental release measures and personal protection requirements in the current product-specific SDS.
- Prevent dust formation. Do not clean with compressed air and do not use dry sweeping methods that disperse powder into the air.
- Collect material using suitable non-sparking tools or an approved industrial vacuum cleaner suitable for the specific metal powder and hazard classification, with appropriate filtration and explosion protection where required.
- Keep recovered spill material separate from conforming product. Do not return it to the original container.
- Prevent release to drains, soil and surface water, subject to any additional measures stated in the applicable SDS.

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5.2 Disposal

Dispose of powder, process residues, contaminated cleaning materials and packaging in accordance with the applicable SDS and local, regional, national and international requirements. Where technically and legally possible, prioritize controlled metal recovery or recycling.

SECTION 6: Quality, warranty and limitation of responsibility

6.1 Product quality

- Product-specific acceptance values are defined by the applicable written Product Specification and Certificate of Analysis. General product information or typical values do not replace batch-specific acceptance criteria.
- Powder condition and performance can change through transport, storage, repeated opening, moisture or oxygen exposure, contamination, sieving, reuse and mechanical processing.
- Process results depend on machine configuration, parameter selection, atmosphere control, powder history, process conditions and component design. Suitability must be verified by the user under the intended operating conditions.

6.2 Warranty conditions

Warranty applies only to product that has been professionally transported, stored and handled in accordance with these instructions and the applicable product-specific documentation, within any stated shelf-life or use-by period. Before first opening, the original packaging and tamper-evident seals must be intact unless otherwise agreed in writing.

To the extent permitted by applicable law, warranty and responsibility may be excluded for deterioration, non-conformity or damage resulting from, among other things:

- incorrect transport, storage, acclimatization, opening, resealing or repackaging;
- exposure to moisture, oxygen, incompatible materials or uncontrolled contamination where such exposure may affect the product;
- high-energy mixing, milling, aggressive sieving or other unapproved mechanical treatment that alters particle morphology, surface condition or engineered particle features;
- blending with other powders or reuse without defined qualification and acceptance criteria;
- use outside the intended purpose or failure to follow the applicable SDS, label, written Product Specification, agreed technical requirements or these instructions.

Nothing in this document limits statutory rights or liability that cannot be limited or excluded under applicable law.

SECTION 7: Supplier details and document control

7.1 Supplier

Company Name: Ultra Metal Powders Sp. z o. o.
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