

SAFETY DATA SHEET

Orvan™ Base

Granule · Soil inoculant for leguminous crops

Prepared in the 16-section GHS / ISO 11014 format for the safe handling, storage, transport and emergency management of this product.

Not classified

As hazardous

Non-GMO

Strain origin

18 months

Shelf life

≤ 30 °C

Storage

This is a low-risk biological product. Hazard classification, label elements and emergency-contact requirements vary by jurisdiction; importers and users are responsible for confirming and complying with local requirements. Section 3 composition follows the current Chinese microbial-fertilizer registration (No. 16162).

Developed by the Oil Crops Research Institute, Chinese Academy of Agricultural Sciences (OCRI-CAAS). Commercialized and supported worldwide by Huasheng Bio Limited.

1 Identification

Product name	Orvan™ Base — Orvan™ Microbial Inoculant (granule)
Product type	Multi-strain microbial soil inoculant / biofertilizer (biological product)
Generic name	Microbial inoculant, granule form
Recommended use	Agricultural soil inoculant for leguminous crops (peanut, soybean and other food and forage legumes)
Restrictions on use	For professional agricultural use only. Use only in accordance with the product label and the Orvan™ Base Technical Data Sheet.
Supplier	Huasheng Bio Limited · contact@huasheng.bio · huasheng.bio
Manufacturer	Contract-manufactured in China; placed on the market by Huasheng Bio Limited.
Emergency telephone	Safety information: contact@huasheng.bio. Business enquiries: +86 132 6005 3339 (business hours; not a 24-hour emergency line). A local 24-hour emergency contact is supplied by the importer in each destination market.
SDS number	ORVAN-SDS-2026-01 Version: 1.3 Issued: 2026 Supersedes: 1.2 (product renamed Orvan™ Base; no change to safety content)

2 Hazard Identification

2.1 Classification of the substance / mixture

Based on available data and in-house strain characterization, this product is not classified as hazardous under the GHS, and is not a dangerous good for transport. The final classification must be confirmed under the regulatory framework in force in the country of import or use (e.g. GHS, OSHA HazCom, EU CLP).

2.2 Label elements

- **Signal word:** None (not classified).
- **Hazard statements:** None assigned.
- **Precautionary statements:** As with any biological or agricultural product — avoid breathing dust; wash hands thoroughly after handling; wear suitable gloves and a dust mask; keep out of reach of children; keep away from food, drink and animal feed.

2.3 Other hazards

Granule or powder handling may generate dust that can mechanically irritate the eyes and respiratory tract. This product contains live microorganisms; individuals with compromised immunity should avoid unnecessary exposure. No PBT or vPvB properties are known.

3 Composition / Information on Ingredients

This product is a mixture of naturally occurring, non-GMO soil bacteria on a solid carrier. The microbial components below follow the effective strains named on the current Chinese fertilizer registration (see Section 15).

Component	Concentration	Notes
<i>Bacillus velezensis</i>	Component of the combined total viable count	Spore-forming; non-GMO; not classified as hazardous
<i>Brevibacillus laterosporus</i>	Component of the combined total viable count	Spore-forming; non-GMO; not classified as hazardous
<i>Paenibacillus mucilaginosus</i>	Component of the combined total viable count	Spore-forming; non-GMO; not classified as hazardous
Carrier (mineral / organic granule)	Balance	Inert agricultural carrier; contains no hazardous substances above disclosure thresholds

Note: Combined total effective viable count of the three strains $\geq 5 \times 10^8$ CFU/g (per the registration). Strain names follow the current Chinese registration; *Paenibacillus mucilaginosus* is listed under its synonym *Bacillus mucilaginosus* on registration No. 16162. There are no chemical components classified as hazardous at or above the applicable cut-off concentrations.

4 First-Aid Measures

- **Inhalation:** move to fresh air. If irritation persists, seek medical advice.
- **Skin contact:** wash with soap and water. If irritation develops, seek medical advice.

- **Eye contact:** rinse cautiously with running water for several minutes; remove contact lenses if present and easy to do, then continue rinsing. If irritation persists, seek medical attention.
- **Ingestion:** rinse mouth. Do not induce vomiting. Seek medical advice if feeling unwell.
- **Note to physician:** treat symptomatically. No specific antidote required.

5 Fire-Fighting Measures

- **Suitable extinguishing media:** water spray, foam, dry chemical or carbon dioxide, appropriate to the surrounding fire.
- **Specific hazards:** the product is not flammable under GHS criteria. The organic carrier is combustible and will burn if involved in a fire; combustion may produce carbon oxides.
- **Protection for firefighters:** wear self-contained breathing apparatus and full protective clothing in an enclosed fire.

6 Accidental Release Measures

- **Personal precautions:** avoid generating and breathing dust; wear gloves, eye protection and a dust mask.
- **Environmental precautions:** prevent large quantities from entering drains or watercourses. The organisms are naturally soil-occurring and biodegradable.
- **Methods for cleaning up:** sweep or vacuum the spilled material into a labelled container for use or disposal; avoid dry sweeping that raises dust — dampen if practical.

7 Handling & Storage

- **Handling:** use in a well-ventilated area; minimise dust generation; wear gloves and a dust mask; do not eat, drink or smoke while handling; wash hands afterwards.
- **Storage:** store in a cool, dry, ventilated place at $\leq 30^{\circ}\text{C}$ (short excursions $\leq 35^{\circ}\text{C}$), relative humidity $< 65\%$, out of direct sunlight. Keep containers closed. Do not store adjacent to pesticides, fuels, strong oxidizers or strong alkalis.
- **Shelf life:** 18 months for the granule under the stated conditions; use opened packs within 30 days.

8 Exposure Controls / Personal Protection

- **Occupational exposure limits:** none established for the microbial components. Where dust is generated, apply a general nuisance-dust approach.
- **Engineering controls:** general ventilation; local exhaust where significant dust is generated.
- **Respiratory protection:** dust mask (FFP2 / N95 or equivalent) where dust exposure is likely.
- **Hand / eye protection:** impervious gloves; safety glasses or goggles when dust may be generated.

9 Physical & Chemical Properties

Property	Value
Appearance / form	Brown granule, 2–4 mm
Odour	Slight, earthy

pH	6.5 – 7.5 (10% aqueous suspension)
Moisture	≤ 10%
Solubility in water	Disperses; carrier not fully soluble
Flammability	Not flammable
Melting / boiling point	Not applicable (solid mixture)
Explosive / oxidizing properties	None
Bulk density	Not determined

10 Stability & Reactivity

- **Stability:** stable under recommended storage conditions.
- **Conditions to avoid:** prolonged high temperature (> 35 °C), direct sunlight, high humidity; avoid freezing of any moist material.
- **Materials to avoid:** products with antibacterial activity — copper compounds, agricultural antibiotics and chemical bactericides — and strong oxidizers, strong alkalis (pH > 9) and chlorinated water (> 2 ppm). These reduce microbial viability; they do not give rise to a hazardous reaction. Compatibility positions for individual products are set out in ORVAN-COMPAT-2026-01.
- **Hazardous decomposition products:** none under normal conditions; carbon oxides on combustion.

11 Toxicological Information

- **Acute toxicity:** no acute toxicity is expected. The strains are non-GMO soil bacteria. None of the three strains belongs to the *Bacillus cereus* group associated with emetic or diarrhoeal toxins. *Bacillus velezensis* is included on the EFSA Qualified Presumption of Safety (QPS) list.
- **Irritation / sensitization:** dust may cause mechanical irritation of the eyes and respiratory tract. No skin or respiratory sensitisation data are available for the product.
- **Carcinogenicity / mutagenicity / reproductive toxicity:** no data indicating such effects; components are not listed as carcinogens.
- **Other:** the components are not known human pathogens under normal agricultural use.

12 Ecological Information

- **Ecotoxicity:** the components are naturally occurring soil bacteria that are part of the native soil microbial community. No crop phytotoxicity was observed across five years of multi-site agronomic demonstration in China. No formal ecotoxicological studies (e.g. on non-target soil or aquatic organisms) have been conducted on the formulated product; environmental risk assessment remains the responsibility of the registrant in the country of use.
- **Persistence / degradability:** readily biodegradable organic carrier; the microorganisms are part of the natural soil community.
- **Bioaccumulation / mobility:** no bioaccumulation potential.

13 Disposal Considerations

- **Product:** small quantities may be applied to soil per label directions; dispose of larger quantities and contaminated waste in accordance with local, regional and national regulations.
- **Packaging:** empty containers should be recycled or disposed of per local regulations. Do not reuse empty containers for food or feed.

14 Transport Information

This product is not classified as a dangerous good for transport.

Framework	Status
UN number	Not applicable (not regulated)
ADR / RID (road / rail)	Not classified as dangerous goods
IMDG (sea)	Not classified as dangerous goods
IATA / ICAO (air)	Not classified as dangerous goods
Special precautions	Keep dry; protect from extreme heat and direct sunlight
Not a dangerous good does not mean freely importable This is a live microbial product. Importation of the organisms and their mineral or organic carrier may require a biosecurity, quarantine or phytosanitary import permit in the destination country. Confirm import requirements before shipment — for live microbial products this permit, not dangerous-goods classification, is normally the binding constraint.	

15 Regulatory Information

- **China registration:** registered as a microbial inoculant (granule) — registration No. 16162 (2026). Effective viable count $\geq 5 \times 10^8$ CFU/g. Other Orvan™ formats are covered by separate registrations.
- **GMO status:** Non-GMO; all strains are naturally isolated.
- **Import / destination-market status:** the product must be registered or permitted for import and use in the destination country before sale. Regulatory classification, permitted claims and labelling are jurisdiction-specific and are the responsibility of the importer or local registrant.
- **Other:** formulation-specific classification under GHS / CLP / OSHA and any biosafety notification are determined under the framework in force at the point of import or manufacture.
- **Format of this document:** prepared in the 16-section format of the GHS and ISO 11014. A Chinese-language version (ORVAN-SDS-2026-01-CN) is issued in the format of GB/T 16483-2008 for use in the Chinese market.

16 Other Information

Issued by Huasheng Bio Limited. Version 1.3, 2026. This SDS was prepared in the 16-section format for a low-risk biological product. The information is based on in-house strain characterization, the Chinese registration and current knowledge, and is offered in good faith for the safe handling, use, storage and transport of the product. It does not constitute a specification or a guarantee of properties. This document is intended as a global reference SDS; destination-market requirements should be reviewed by the local importer or regulatory representative before commercial distribution.

Language versions. A Chinese-language version of this document is issued as ORVAN-SDS-2026-01-CN. The two versions are equivalent in content. In the event of any divergence in interpretation, this English version prevails.

Revision history. Version 1.3 (2026) — granule format renamed Orvan™ Base to match the three-format portfolio; no change to composition, hazard classification or any other safety content. Version 1.2 (2026) — Section 10 materials-to-avoid entry completed to name all product classes with antibacterial activity, with a cross-reference to ORVAN-COMPAT-2026-01; no change to hazard classification or to any other safety content. Version 1.1 (2026) — reissued in the current Huasheng document design and aligned with the Chinese-language edition; safety content unchanged from version 1.0.

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