Global Product Strategy (GPS) Safety Summary

BOSCALID TECHNICAL

This GPS Safety Summary is a high-level summary intended to provide the general public with an overview of product safety information on this chemical substance. It is not intended to provide emergency response, medical or treatment information, nor to provide an overview of all safety and health information. This summary is not intended to replace the Safety Data Sheet. For detailed guidance on the use or regulatory status of this substance, please consult the Safety Data Sheet and the Product Stewardship Bulletin (PSB).

Chemical Identity

Name: Boscalid Technical
Brand names: NA
Chemical name (IUPAC): 2-chloro-*N*-[2-(4-chlorophenyl) phenyl]pyridine-3-carboxamide
CAS number: 88425-85-6
EC number: 606-143-0
Molecular formula: $C_{18}H_{12}Cl_2N_2O$

Uses and Applications

Boscalid is a broad-spectrum fungicide widely used in modern agriculture to control a range of fungal diseases affecting various crops. It belongs to the chemical class of carboxamides (**SDHI** – Succinate Dehydrogenase Inhibitors) and is recognized for its targeted action against important pathogens, especially those that threaten the quality and yield of high-value crops.

Boscalid works by inhibiting the mitochondrial respiration in fungal cells, specifically targeting the succinate dehydrogenase enzyme in the electron transport chain. This disruption in energy production effectively halts fungal growth and reproduction. Its mode of action makes it particularly effective against fungal diseases such as Botrytis (gray mold), Sclerotinia (white mold), Alternaria, Powdery Mildew, and Anthracnose.

Boscalid is commonly applied to a wide range of crops including grapes, berries, pome fruits, vegetables (like lettuce, beans, and tomatoes), canola, and peanuts. Due to its residual activity and systemic properties, it offers both protective and curative effects, making it a valuable component in disease management programs.

Formulations

Boscalid is available in various formulated products, often in combination with other active ingredients to broaden its spectrum and reduce the risk of resistance development. Some common formulation types include:

- **WG (Water Dispersible Granules)** – Easy to mix and apply with consistent suspension in spray solutions.
- **SC (Suspension Concentrate)** – Offers uniform application and is often used in tank mixes.
- **DF (Dry Flowable)** – Stable and dust-free, providing excellent handling characteristics.

- **Combination Products** – Boscalid is frequently combined with fungicides, In pre-mixed formulations to enhance efficacy and resistance management.

Responsible Use

While Boscalid is highly effective, its use must be carefully managed. To minimize the risk of fungicide resistance, it is essential to rotate Boscalid with fungicides of different modes of action and to integrate its application into a broader Integrated Disease Management (IDM) strategy. Additionally, adherence to safety guidelines ensures protection of users, consumers, and the environment.

Physical / Chemical Properties

At ambient temperature Boscalid is a White colour power, moderately low molecular weight and Boscalid is non-flammable under normal conditions. The flash point for Boscalid doesn't flash at normal storage conditions, meaning it does not easily ignite at standard temperatures Boiling Point: The boiling point of Boscalid Its boiling point is estimated to be approximately 447.7°C, with a margin of error of ±45.0°C and the melting point of Boscalid typically around about 147 - 151°C.

Health Effects

Boscalid is classified under GHS as hazardous for acute toxicity, single exposure target organ toxicity, and developmental/lactation toxicity, fetal development, and causing organ damage.

The table below gives an overview of the health effects assessment results for Boscalid.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	acutely low in toxicity via oral, dermal, and inhalation routes of exposure. Toxicological studies in laboratory animals have shown that Boscalid has high LD_{50} and LC_{50} values, indicating that large doses are required to produce toxic effects. Therefore, under normal handling and use conditions, acute exposure to Boscalid poses minimal toxicological risk to human health.
Irritation / corrosion Skin / eye/ respiratory tract	Not irritating to Eye and Skin
Sensitization	Not a skin sensitizer
Toxicity after repeated exposure Oral / inhalation / dermal	Boscalid technical exhibits a relatively favorable safety profile, target organ toxicity (primarily liver and endocrine-related effects) may arise under conditions of prolonged or high-dose exposure. Appropriate risk mitigation measures, including PPE use and exposure monitoring, are essential during manufacturing and application processes.
Genotoxicity / Mutagenicity	In-vitro and vivo systems. The available data indicates that Boscalid is not genotoxic or mutagenic under standard testing conditions.
Toxicity for reproduction	No significant effects on fertility or reproductive organs in animal studies.

Environmental Effects

Boscalid moderately Toxic to aquatic life under the Globally Harmonized System (GHS) due to its potential to cause harmful effects in aquatic ecosystems.

The table below gives an overview of the environmental assessment results for Boscalid.

Effect Assessment	Result
Aquatic Toxicity	Moderately toxic to aquatic life under the Globally Harmonized System (GHS

Fate and behaviour	Result
Biodegradation	Moderately biodegradable
Bioaccumulation potential	Low risk
PBT / vPvB conclusion	This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

PBT = Persistent, Bio-accumulative and Toxic in the environment.
vPvB = very Persistent and very Bio-accumulative in the environment.

Exposure

Human health

Respiratory Protection:

- Wear a respirator equipped with a particle filter mask offering a protection factor of 20, compliant or equivalent certified standards.
- Respiratory protection should be used only to control residual risk during short-duration tasks where exposure cannot be sufficiently mitigated by engineering controls (e.g., containment or local exhaust ventilation).
- Always adhere to the respirator manufacturer's guidelines regarding proper fitting, maintenance, and replacement.

Hand Protection:

- Wear chemical-resistant gloves certified under appropriate standards.
- Follow glove supplier recommendations concerning permeability and breakthrough time.
- Consider specific local use conditions, such as abrasion risk, duration of contact and chemical concentration.
- Wash gloves regularly; replace immediately if perforated, contaminated internally, or if exterior contamination cannot be cleaned.
- Wash hands thoroughly and frequently- especially before eating, drinking, smoking, or using restroom facilities.

Eye Protection:

- Use safety glasses or goggles those equivalent international standards.
- Eye protection should be worn during all handling activities where splashing, dust generation, or particulate exposure is possible.

Skin and Body Protection:

- Wear standard industrial coveralls along with a Category 3, Type 4 chemical protection suit.
- In situations with elevated exposure risk, consider using higher-level protection.
- Where feasible, wear two layers of clothing - preferably cotton or polyester/cotton overalls underneath the chemical suit.
- These undergarments should be professionally laundered on a regular basis.

Environment

Discharge Prevention:

Environmental exposure to Boscalid should be strictly avoided. Prevent any release into soil, surface water, groundwater, or sewage systems, as Boscalid is toxic to aquatic organisms and may have long-term adverse effects in the environment.

Leakage or Spillage Protocol:

- Stop the source of leakage if it is safe to do so.
- Contain the spill using suitable non-combustible absorbent materials (e.g., sand, earth, vermiculite).
- Prevent the product from entering drains, sewers, or waterways.
- Clean up promptly using mechanical means; avoid generating dust. Collected waste should be placed in suitable, labelled containers for disposal according to local regulations.

Contaminated Wash Water:

Any wash water used during clean-up or decontamination should be collected and retained.

- Do not allow wash water to enter soil, watercourses, or drainage systems.
- Dispose of in accordance with hazardous waste disposal regulations, ensuring no environmental release.

Notify to Authorities:

- If a major spillage occurs and cannot be safely contained, notify local environmental and emergency response authorities without delay.
- Prompt notification allows appropriate measures to be taken by environmental protection services to minimize ecological damage.

Risk Management Measures

For detailed guidance on the use of Boscalid Technical, the Safety Data Sheet and the Product Safety Bulletin should be consulted.

Boscalid Technical should be handled only by knowledgeable and trained personnel.

Flammability

Boscalid is non-flammable under normal conditions

Human health

- **Ventilation & PPE:** Ensure adequate ventilation when handling Boscalid. Always wear chemical-resistant gloves, eye protection (such as goggles), and flame-retardant clothing to minimize exposure. Consider using a face shield if there is a risk of splashing or inhalation. Ensure that all

protective equipment is in good condition and is used correctly.

- **Hygiene:** Do not eat, drink, or smoke in areas where Boscalid is stored or used. After handling, wash hands and skin thoroughly with soap and water. In case of eye contact, immediately rinse with water for at least 15 minutes and seek medical attention. If the substance comes into contact with the skin, wash thoroughly and remove contaminated clothing. Ensure no residue remains on the skin.

- **Transfer & Maintenance:** During transfer or maintenance operations, always clear transfer lines, flush or drain the system into a closed container for recycling and ensure that all equipment is securely closed before opening. Regularly inspect and maintain transfer systems to prevent accidental exposure. Always follow proper decontamination procedures for equipment.

Environmental

In case of accidental release or spill, do not allow the product to enter sewers, surface or ground water.

Regulatory Information / Classification and Labelling

REACH - Candidate List of Substances of Very High Concern for Authorization (Article 59).	: Not Applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	: Not Applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	: Not Applicable
REACH - List of substances subject to authorization (Annex XIV)	: Not Applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	E1	Environmental Hazards

Conclusion Statements

✓Boscalid Technical is a broad-spectrum fungicide widely utilized in modern agriculture to control a variety of fungal pathogens. Its targeted mode of action and effectiveness at low application rates make it a valuable component in crop protection programs. However, like all agrochemicals, Boscalid must be applied responsibly and in strict accordance with regulatory and safety guidelines to reduce potential risks to human health and the environment.

✓Under the Globally Harmonized System (GHS), Boscalid is classified as toxic to aquatic life with

long-lasting effects, highlighting the importance of implementing robust environmental protection measures. To sustain its long-term efficacy and minimize resistance development, Boscalid should be used as part of an Integrated Pest Management (IPM) strategy that includes crop rotation, resistant varieties, and alternating fungicide modes of action.

Contact Information within Company

For further information on this product in general, please consult the Coromandel International limited corporate website (https://www.coromandel.biz/)

Date of issue

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Disclaimer

The above information is intended to give general health and safety guidance on the storage and transport of the substance or product to which it relates. The requirement or recommendation of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given. The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate. No liability will be accepted for any injury loss or damage resulting from any failureto take account of information or advice contained in this safety data sheet.

End of GPS Sheet