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5,5-DIMETHYLHYDANTOIN (DMH) MICRONISED

USES AND APPLICATIONS

5,5-Dimethylhydantoin (DMH) is a multifunctional heterocyclic compound widely used as an intermediate and stabilizing component across water treatment, industrial chemicals, agrochemicals, polymers, and specialty formulations. Its chemical stability, neutral pH behavior, and compatibility with halogen systems make it a preferred building block in several controlled-release and stabilised chemistry applications.

Key Commercial Applications

1. Water Treatment & Disinfection Systems

DMH is primarily used as a precursor in the manufacture of stabilized halogen disinfectants, including bromine- and chlorine-based hydantoin derivatives. These materials are extensively applied in:

- Swimming pools and spas
- Cooling towers
- Industrial water circulation systems
- Its role enables controlled halogen release and improved stability of disinfectant systems.

2. Personal Care & Formulations

In selected formulations, DMH functions as a preservative component or stabilizing intermediate, contributing to microbial control in personal care products such as:

- Shampoos
- Liquid soaps
- Cosmetic emulsions
- Use is formulation-dependent and aligned with applicable cosmetic regulations.

3. Pharmaceutical & Fine Chemical Intermediates

DMH is used as a reaction intermediate in pharmaceutical synthesis, where its heterocyclic structure supports controlled functionalization in drug and fine-chemical manufacturing.

4. Agricultural Chemistry

In agrochemical production, DMH is incorporated as a stabilizing intermediate in:

- Fungicide formulations
- Pesticide systems

Its contribution lies in improving chemical stability and controlled activity of active ingredients.

5. Industrial & Polymer Applications

DMH is applied in several industrial chemical processes, including:

- Stabilization of chlorinated compounds
- Intermediate for specialty resins and polymer additives
- Organic synthesis for downstream functional materials

Its consistent purity and thermal behavior support predictable processing outcomes.

Typical Product Specifications

Parameter	Specification
Chemical Name	5,5-Dimethylhydantoin
CAS Number	77-71-4
HS Code	2933.21.00
Chemical Formula	$C_5H_8N_2O_2$
Molecular Weight	128.13 g/mol
Melting Point	174–178 °C
Physical Form	White crystalline powder
Purity	≥ 99 % (typical)
Moisture Content (LOD)	Max. 0.5 %
pH (1 % aqueous solution)	6.5–7.5
Solubility	Soluble in water and selected organic solvents
Particle Size	D99 < 20 µm

Regulatory & Compliance Overview

Commonly supplied in grades compliant with REACH and general industrial chemical regulations

Regulatory suitability depends on application, exposure conditions, and downstream formulation

Users should evaluate compliance based on intended end use and local regulatory frameworks

Application Scope / Usage Note

5,5-Dimethylhydantoin is typically supplied as an **industrial intermediate**. Final regulatory status and suitability depend on how the material is converted, formulated, or incorporated into finished systems. End-use validation remains the responsibility of the formulator or manufacturer.

Disclaimer

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The information provided is based on publicly available technical data and typical industry practice. It is intended for informational purposes only and does not constitute a specification or guarantee of performance. Users are advised to conduct their own evaluations to determine suitability for specific applications.

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END OF REPORT