

## Evaluation Report for Category B, Subcategory 3.1 Application

**Application Number:** 2016-4070  
**Application:** Changes to Product Labels - Application Rate Increase  
**Product:** Aquacar DB 20 Water Treatment Microbiocide  
**Registration Number:** 23358  
**Active ingredient (a.i.):** 2,2-dibromo-3-nitrilopropionamide  
**PMRA Document Number:** 2746288

### Purpose of Application

The purpose of this submission was to increase the application rates for oilfield applications on the registered product label for Aquacar DB 20 Water Treatment Microbiocide. The product is an industrial microbiocide for use in the oil and gas industry to control bacteria in aqueous-based systems that are susceptible to microbial contamination.

### Chemistry Assessment

A chemistry assessment was not required for this application.

### Health Assessments

The change in the application rate did not impact the toxicological profile of the end-use product Aquacar DB 20 Water Treatment Microbiocide.

The occupational exposure and risk from the increase in application rate for use in oil field applications, fracturing fluids, enhanced oil recovery fluids and water flood to the Aquacar DB 20 Water Treatment Microbiocide label was assessed. No risks of concern are expected from the increase in application rate, provided that workers follow the label directions and wear the personal protective equipment identified on the label.

A dietary exposure assessment was not required for this application.

### Environmental Assessment

Concentrations of 2,2-dibromo-3-nitrilopropionamide in waste fluids from use in oil and gas operations are expected to be low. 2,2-dibromo-3-nitrilopropionamide is relatively unstable in water due to hydrolytic reactions, chemical degradation and microbial breakdown. 2,2-dibromo-3-nitrilopropionamide is not expected to accumulate in organisms and will breakdown quickly in aquatic and terrestrial environments.

The transformation products are not of toxicological concern to the environment. Risks of concern to the environment are not expected from the use of Aquacar DB 20 Water Treatment Microbiocide in on-shore oil and gas field operations. 2,2-dibromo-3-nitrilopropionamide has demonstrated toxicity to aquatic organisms, therefore, precautionary label statements informing users of the toxicity to aquatic organisms are required.

### **Value Assessment**

Three laboratory trials were provided to support the increase in use rates for Aquacar DB 20 Water Treatment Microbiocide as an industrial microbiocide for use in controlling bacteria in hydraulic fracturing fluids at rates of 90-270 ppm of product and water floods, enhanced oil recovery fluids and general oilfield applications at rates of 30-270 ppm of product. Therefore, the increase in use rates for these oilfield applications have acceptable value.

### **Conclusion**

The Pest Management Regulatory Agency has completed an assessment of the information provided, and has found the information sufficient to support the increase in application rates for oilfield applications on the registered product label for Aquacar DB 20 Water Treatment Microbiocide.

## References

PMRA Document Number	Reference
2666251	2016, 23358_DACO_10.2.3.1 Summary, DACO: 10.2.3.1
2666252	2016, Antimicrobial Efficacy of AQUACAR DB 20 Water Treatment Microbiocide for Oil and Gas Applications, DACO: 10.2.3.2
1162334	1971, Acute Toxicity of DBNPA to Bluegill Sunfish ( <i>Lepomis macrochirus</i> ) and Rainbow Trout ( <i>Salmo gairdneri</i> ), DACO: 9.5.2.1
1162335	1972, Biological Activity of Dibromonitrilopropionamide (DBNPA) and Its Degradates to Key Indicator Species, DACO: 9.2.1, 9.3.1, 9.5.1, 9.5.3.1, 9.6.1, 9.6.2.4, 9.8.2
1142454	1975, Eight-Day Dietary LC <sub>50</sub> – Mallard Ducks XD-1603L, Final Report, DACO: 9.6.2.1
1142453	1975, Eight-Day Dietary LC <sub>50</sub> – Bobwhite Quail XD-1603L, Final Report, DACO: 9.6.2.1
1162332	1971, Acute Oral Lethality of Dibromonitrilopropionamide in Mallard Duck and Bobwhite Quail, DACO: 9.6.2.1
1142455	1974, Uptake and Clearance of 2,2-Dibromo-3-Nitrilopropionamide-2 <sup>14</sup> C in Trout, DACO: 9.5.5
1142448	1974, Distribution with Time of Degradation Products of <sup>14</sup> C-DBNPA (Dibromonitrilopropionamide) in Dilute Aqueous Solutions at pH Values of 8 and 4, DACO: 8.2.4.1
1162326	1971, A Method for Determining the Biodegradation of CN <sup>14</sup> CB <sub>2</sub> CONH <sub>2</sub> and Results Obtained in Studies Simulating its Use as a Slimicide, DACO: 8.2.2.1: 8.2.3.1, 8.3.4
1162320	1971, Rates and Products of Decomposition of 2,2-Dibromo-3-Nitrilopropionamide (DBNPA), DACO: 8.2.1, 8.2.3.1
1162325	1969, Electrolytic Reduction and Pulse Polarographic Determination of 2,2-Dibromo-2-Carbamoylacetonitrile. Hydrolysis Rates and Reactions with Mercury, Iron, Zinc and Xanthates, DACO: 8.2.1, 8.2.2.1
1142446	Solubility and pH of DBNPA in D.I. Water, DACO: 8.2.1
2663811	2009, US EPA Summary of Product Chemistry, Environmental Fate, and Ecotoxicity Data for the Dibromo-3-Nitrilopropionamide Registration Review Decision Document, DACO: 9.1, M12.5
2663801	MSDS for Aquacar DB 20 Water Treatment Microbiocide, DACO: 0.9

## Additional information considered

809033	2004, PMRA, Proposed Acceptability for Continuing Registration: PACR2004-16, <i>Re-evaluation of 2,2-dibromo-2-nitrilopropionamide</i> . <a href="http://publications.gc.ca/collections/Collection/H113-18-2004-16E.pdf">http://publications.gc.ca/collections/Collection/H113-18-2004-16E.pdf</a>
1427276	1994, US EPA, Reregistration Eligibility Decision (RED) 2,2-dibromo-3-nitrilopropionamide (DBNPA). <a href="https://archive.epa.gov/pesticides/reregistration/web/pdf/3056.pdf">https://archive.epa.gov/pesticides/reregistration/web/pdf/3056.pdf</a>

- 1160735 1990, Biobrom C-103 (DBNPA, 2,2-Dibromo-3-Nitrilopropionamide) – Acute Toxicity to Eastern Oysters (*Crassostrea virginica*) Under Flow-Through Conditions, DACO: 9.3.1
- 1160663 1990, (DBNPA) – Acute Toxicity to Sheepshead Minnow (*Cyprinodon variegatus*) Under Flow-Through Conditions, DACO 9.5.2.1
- 1160615 1990, (DBNPA) – Acute Toxicity to Mysid Shrimp (*Mysidopsis bahia*) Under Flow-Through Conditions, DACO: 9.4.1
- 1160614 1988, The Algistatic Activity of Biobrom C-103, DACO: 9.8.2
- 1160613 1986, The Toxicity of Biobrom C-103 to Rainbow Trout (*Salmo gairdneri*) Embryos and Larvae, DACO: 9.5.2.1
- 1160662 1984, Acute Toxicity of C-103 to Rainbow Trout (*Salmo gairdneri*), DACO: 9.5.2.1
- 1160664 1984, Acute Toxicity of C-103 to Bluegill Sunfish (*Lepomis macrochirus*), DACO: 9.5.2.1
- 1160655 1985, Static Acute Toxicity of Dibromonitrilopropionamide and Selected Degredation Products to the Fathead Minnow (*Pimephales promelas* Rafinesque), DACO: 9.5.2.1
- 1160612 1986, The Chronic Toxicity of Biobrom C-103 to *Daphnia magna* Under Flow-Through Conditions, DACO: 9.3.1
- 1160661 1984, Acute Toxicity of C-103 to *Daphnia magna*, DACO: 9.3.1
- 1160633 1984, A Dietary LC<sub>50</sub> Study in the Bobwhite with Biobrom C-103, Final Report, DACO: 9.6.2.1
- 1160644 1984, A Dietary LC<sub>50</sub> Study in the Mallard with Biobrom C-103, Final Report, DACO: 9.6.2.1
- 1160622 1984, An Acute Oral Toxicity in the Bobwhite with Biobrom C-103, Final Report, DACO: 9.6.2.1
- 1160728 1983, Temperature and pH Dependent Hydrolysis of 2,2-Dibromo-3-Nitrilopropionamide, DACO: 8.2.1
- 1160730 1987, 2,2-Dibromo-3-Nitrilopropionamide (DBNPA) Chemical Degredation in Natural Waters: Experimental Evaluation and Modeling of Competitive Pathways, Wat. Res. Vol. 21, No.7. pp. 801-807, DACO: 8.2.3.1
- 1160601 1991, Biobrom C-103 (DBNPA, 2,2-Dibromo-3-Nitrilopropionamide) – Photodegradation Study in Water, DACO: 8.2.1
- 1160731 1991, Biobrom C-103 (DBNPA, 2,2-Dibromo-3-Nitrilopropionamide) – Determination of the Adsorption and Desorption Coefficients, DACO: 8.2.4.1
- 1160611 1992, Biobrom C-103 (DBNPA, 2,2-Dibromo-3-Nitrilopropionamide) – Determination of the Anaerobic Aquatic Metabolism, DACO: 8.2.3.1
- 1160602 1992, Biobrom C-103 (DBNPA, 2,2-Dibromo-3-Nitrilopropionamide) – Determination of the Aerobic Aquatic Metabolism, DACO: 8.2.3.1
- 1160733 1988, Assessment of the Inherent Biodegradability of Dibromoacetic Acid, DACO: 8.2.3.1
- 1160732 1988, Biodegradability of Biobroom, DACO: 8.2.3.1
- 1160727 1973, Rates and Products of Decomposition of 2,2-Dibromo-3-Nitrilopropionamide, DACO: 8.2.1
- 1160600 1991, Biobrom C-103 (DBNPA, 2,2-Dibromo-3-Nitrilopropionamide) – Hydrolysis Study, DACO: 8.2.1

NA

Drilling Waste Management Information System Fact Sheet – Land Application.  
<http://web.ead.anl.gov/dwm/techdesc/land/index.cfm>[2017-08-21 10:31:14 AM]

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