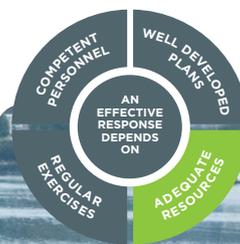


Dasic Slickgone NS Effectiveness, toxicity and biodegradability



This datasheet provides a summary of key facts about Dasic Slickgone NS.

Name	Dasic Slickgone NS (sometimes referred to as Dasic, Slickgone or just NS)
Supplying company	Dasic International Ltd

Dispersant product approval

Development of dispersant regulations by competent national authorities or appropriate government regulators forms a critical part of national oil spill contingency planning processes, in alignment with the International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 (OPRC Convention).

Dispersant product approval requirements outline which dispersants are approved for use and how dispersants can be added to a list of approved dispersants

by meeting the requirements of specific laboratory-based tests.

The tests are designed to screen out least effective or more toxic dispersants and as such can only be used for comparative purposes and not for assessment of actual impacts or efficiency at sea where mixing and especially exposure conditions (as well as organisms types and life stages) would be very different.

During a response, field efficiency may be evaluated by a test application of dispersant.

Further information on regulatory approval and authorisation can be found in the IPIECA-IOGP report on the subject: bit.ly/DispersantAA

Effectiveness

A dispersant should meet or exceed a threshold for effectiveness (or 'efficacy'). It is necessary for a dispersant to possess a minimum level of effectiveness to enhance the rate of natural dispersion when applied at sea.

A range of laboratory based tests are used globally that have been designed to allow for the assessment of good vs poor performance: IFP (>60%) in France, WSL (LR448, >60%) in UK and SFT in USA/Canada (>45%).

These tests are designed to assess dispersant efficacy under specific conditions described in national regulations. None of the laboratory test methods can simulate the complex mixing scenarios and energies encountered in the marine environment. Therefore, results from laboratory tests typically expressed as 'percentage effectiveness',

	UK	FRANCE	AUSTRALIA
Efficacy pass level	>60% Dispersants must achieve a minimum efficiency of 60%	>60% Dispersants must achieve a minimum efficiency of 60%	>50% Dispersants must achieve a minimum efficiency of 50% when tested by the Mackay dispersant performance test
Efficacy achieved	Pass Slickgone NS has passed the LR448 approval test, i.e. has a minimum efficacy of 60% Manufacturer declared data of 80-90% effectiveness	Pass Slickgone NS has passed the IFP approval test, i.e. has a minimum efficacy of 60%	Pass Slickgone NS effectiveness 75% (Q cut) on reference oil, 77.5% on IFO180 and 12% on HFO380

should not be extrapolated to the amount of oil likely to be dispersed in real world incidents. The tests will, however, provide data on the relative effectiveness of different dispersants under the parameters of that test.

Toxicity

Toxicity testing

A dispersant should not exceed a maximum toxicity threshold to marine life. Care needs to be taken when considering dispersant toxicity versus the toxicity of the dispersed oil (dispersant plus oil) since it is the toxicity of the oil that accounts for the largest contribution. When evaluating toxicity for inclusion onto a list of approved products the maximum toxicity threshold of a candidate dispersant is usually set at either:

- a) a level where the oil and dispersant mixture is no more toxic than the oil alone at the same exposure levels; or
- b) if the dispersant is tested alone, at a level which is significantly less toxic than a reference oil.

This testing can only evaluate the relative toxicity of different candidate dispersants under artificial laboratory conditions and is not intended to predict actual environmental impacts in the field where the exposure regime experienced by marine organisms will be much different.

UK

Pass

Sea Test passed¹

FRANCE

Pass

Slickgone NS is approved for France using the standard NF.T.z90-349 method which requires the toxicity of Slickgone NS to shrimp to be at least 10 times lower than the toxicity of a reference toxicant (Noramium DA50).

1991 test results: Brown shrimp (*Crangon crangon*) LC50 = 66.7 mgL (ppm); Atlantic ditch shrimp (*Paleomonetes varians*) LC50 = 54 mgL (ppm). Using current US EPA toxicity definitions, both results would be classified as slightly toxic.

AUSTRALIA

Slight to practically non toxic = Pass

Slickgone NS meets the Australian Maritime Safety Authority eco-toxicity acceptability criteria for Oil Spill Control Agent product listing under the Australian National Plan.²

Australian Test Species	End Point Value (ppm)
<i>Penaeus monodon</i> (crustacean)	EC50 29.7 ST
<i>Allorchestes compressa</i> (crustacean)	EC50 2.6 MT
<i>Seriola lalandi</i> (fish)	EC50 23.8 ST
<i>Lates calcarifer</i> (fish)	EC50 42 ST
<i>Heliocidaris tuberculata</i> (urchin)	EC50 15.2 ST
<i>Isochrysis aff.galbana</i> (algae)	IC50 6.4 MT
<i>Hormosira banksia</i> (algae)	EC50 >100. Practically non toxic

¹Test procedure exposes shrimps to a mixture of oil (i.e. a lightly weathered Kuwait crude oil) and dispersant. The mixture is 1 part of dispersant to 10 parts of oil. The dispersant will be approved based on nominal concentrations if the dispersant and oil mixture causes no more mortality than that caused by mechanically dispersed oil alone. Results are shown as a pass or fail. Kuwait Crude is used as the reference oil for toxicity testing.

²February 2012 test date

Biodegradability

A dispersant should be readily biodegradable and not contain persistent harmful constituents. This may require additional information to be provided as part of the product approval process.

UK

No requirement for testing

USA

No requirement for testing

FRANCE

>50% = Pass³

³For France, biodegradability of the dispersant should be at least 50%. Tests are performed by INERIS, using the NF T90 346 test method. Slickgone NS meets these requirements and also does not inhibit the biodegradation of crude oil.