



N-Labeling of Preparations

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Introduction

- Many paints containing algicides will carry the environmental N-symbol from March 2007, depending on use concentrations
- The environmental N-symbol may be triggered by the addition of algicides plus fungicides, bactericides or other paint components (e.g. Zinc oxide).

Background: Environmental Labelling (Regulated by the Dangerous Substances Directive - intended for Environmentally Hazardous Substances)

N-symbol:



Risk Phrases:

The N-symbol is always accompanied by any or a combination of the Risk Phrases below:

- R50 Very toxic to aquatic organisms
- R51 Toxic to aquatic organisms
- R52 Harmful to aquatic organisms
- R53 May cause long-term adverse effects in the aquatic environment

The only combination that can exist without the N-symbol is R52/53 (“Warning phrases”)

Background: What is changing?

The publication in January 2006 of the 2nd Amendment of the Dangerous Preparations Directive 1999/45/EC establishes more stringent labelling requirements for preparations containing substances that are toxic for the environment*.

Timing: effective at all EU countries by March 1st, 2007

*substances subject to this amendment see next page

Background: Annex I listing

- Directives:
 - Dangerous Substances Directive 67/548/EC: DSD
 - Dangerous Preparations Directive 1999/45/EC : DPD
 - Classification, packaging and labeling of dangerous substances/preparations
- Annex I of DSD:
 - Officially harmonized classification and labeling (C&L) of substances are listed in Annex I of the DSD:
 - Either with **specific concentration limits** (SCL) for the C&L: out of scope, given SCL of annex I need to be applied (**Annex I with SCL**)
 - Or without SCL: in scope (**Annex I without SCL**)
 - Not listed in Annex I of DSD self-classification needs to happen:
 - in scope (**Self-classification**)

2. Which Substances used in Coatings will trigger the label ?

In general: Every environmentally hazardous substance present contributes and can trigger the label

In practice this means:

- Commonly used Algicides, like Cybutryne (Irgarol)
Terbutryne and Diuron
- The additive effect of algicides plus:
 - Fungicides
 - Bactericides
 - Other paint components that are environmentally hazardous (e.g. Zinc oxide, N, R50/53)

What are the changes for “strict” algicides?

Active	Current	2nd Amend of DPD
Terbutryne* (CAS No. 886-50-0) Self-classification	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53	if C \geq 25 PPM, R52/53 if C \geq 250 PPM, N, R51/53 if C \geq 2500 PPM, N, R50/53
Cybutryne* (=Irgarol) (CAS No. 28159-98-0) Self-classification	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53	if C \geq 25 PPM, R52/53 if C \geq 250 PPM, N, R51/53 if C \geq 2500 PPM, N, R50/53
Diuron* (CAS No. 330-54-1) Annex I, no SCL	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53	if C \geq 250 PPM, R52/53 if C \geq 2500 PPM, N, R51/53 if C \geq 2.5 % N, R50/53

Data based on available information as of September 15 2006

* C&L status as of September 15 based on supplier data available

C&L = Classification and Labeling

C = Concentration limit for active in product

Why is Diuron less affected?

- Diuron is less affected because of its lower acute aquatic ecotoxicity (compared to Cybutryne and Terbutryne for some algal species)
- However Diuron has some important downsides, e.g.:
 - Its contribution to AOX
 - Its characteristics with regards to persistency in the environment (e.g.: It is on the proposed priority list as pollutant in EU Water Framework Directive)
 - Its characteristics with regards to carcinogenicity (e.g. EU classification as category 3 carcinogen)

How are other film fungicides affected?

Active	Current	2nd Amend of DPD
IPBC* (CAS No. 55406-53-6) Self-classification	if C \geq 25 % N, R50	if C \geq 2.5 % N, R50
ZPT* (CAS No. 13463-41-7) Self-classification	if C \geq 25 % N, R50	if C \geq 2500 PPM, N, R50
DCOIT (CAS No. 64359-81-5) Self-classification	if C \geq 25 % N, R50	if C \geq 2500 PPM, N, R50
OIT (CAS No. 26530-20-1) Annex I with an SCL	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53

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How are other film fungicides affected?

Substance	Current	2nd Amend of DPD
ZnO* (CAS No. 1314-13-2) Annex I, no SCL	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53
Carbendazim* (CAS No. 10605-21-7) Annex I, no SCL	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53	if C \geq 2500 PPM, R52/53 if C \geq 2.5 %, N, R51/53 if C \geq 25 %, N, R50/53

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How are in-can biocides affected?

Active	Current	2nd Amend of DPD
CMI/MI (CAS No. 55965-84-9) Annex I, with an SCL	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53	if C \geq 2500 PPM, R52/53 if C \geq 2.5 % N, R51/53 if C \geq 25 % N, R50/53
BIT (CAS No. 2634-33-5) Annex I, with an SCL	if C \geq 25 % N, R50	if C \geq 25 % N, R50
MIT (CAS No.2682-20-4) Self-classification	if C \geq 25 % N, R50	if C \geq 25 % N, R50
Bronopol* (CAS No. 52-51-7) Annex I, no SCL	if C \geq 25 % N, R50	if C \geq 25 % N, R50

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What are the consequences for dry-film fungicides / algicides at typical use levels?

Product	Dose level, %	ai, ppm	Consequence
Rocima™ 350	0,74	DCOIT, 999 IPBC, 481	No Label
Rocima™ 250	0,50	IPBC, 2000	No Label
Rocima™ 345	0,50	DCOIT, 400 Cybutryne, 200	Warning phrase
Rocima™ 371N	1,20	IPBC, 1200 Cybutryne, 360	Label
Rocima™ 371	1,20	IPBC, 1200 Diuron, 660	Warning phrase
Rocima™ 363	0,50	Carbendazim, 375 OIT, 135 Diuron, 1000	Warning phrase
Rocima™ 370	0,50	Terbutryne, 1600	Label
Rocima™ 380	0,50	Cybutryne, 1650	Label
Commercial ZPT/OIT formulation*	0.50	OIT, 150 ZPT, 300 Terbutryne, 500 ZnO, 200	Label

*Example of how Rohm and Haas would label if we commercialized this formulation

Additional Consequences

- N-labelled materials are subject to:
 - Special limitations in transport procedures
 - Special limitations in waste management (empty packaging needs to be taken back by manufacturer)

Our recommendations

- In case you are interested in no labelling or risk phrase:
 - **ROCIMA™ 350**
- In case you would be OK with the Risk phrases R52/53 (No N symbol)
 - **ROCIMA™ 371**
 - **ROCIMA™ 363**
- In case you would be ready to label with R43, **OIT** (Rocima 343, Kathon 893F) is a very good algicide, fully classified with SCL, but needs R43 above 500 ppm
- In case you are considering “fungicide building block + algicide on the side”:
 - **ROCIMA™ 342 (DCOIT)**
 - **ROCIMA™ 250 (IPBC)**
 - **ROCIMA™ 343 (OIT)**
 - **ROCIMA™ 320 (Carbendazim)**
- We can produce tailor-made formulations if they are commercially interesting for both the Customer and Rohm and Haas: for example:
ZPT/diuron, ZPT/OIT/diuron, IPBC/OIT, IPBC/OIT/diuron