

## REACH: Scaling in five steps



### Environmental exposure assessments by downstream users

	A	B	C	D	E	F	G	H	I
1	<b>REACH Scale</b>		<b>Cuprasol Blue 294</b>			<b>Environment</b>		<b>Water</b>	
2									
3	<b>1. Receiving water volume (volume flow in m³/day )</b>					<b>260.000</b>	m3/Day		1,4444444
4	Default value: 180.000 m³/day								
5									
6	<b>2. Sewage treatment plant volume (volume flow in m³/day ):</b>					<b>40.000</b>	m3/Day		
7	Default value: 20.000 m³/day								
8									
9	<b>3. Your "in house" emission reduction:</b>					<b>99,0</b>	%		
10	Default value: 99,0 % reduction catalytic oxidation								
11									
12	How much kg of Cuprasol Blue 294 can you use at most under the conditions described (see 1,2,3,4,5)?								
13								<b>214 kg/day</b>	
14	In case of rare applications (less then 1x/month, within 24h) a 10fold higher amount can be used								
15	Quantity discharged into sewage treatment plant:					0,9 kg/day			
16	Quantity discharged into surface water:					0,9 kg/day			
17									
18	If you have robust data available, you may also change also the following parameters:								
19	<b>4. Depletion of substance in application (depending e.g. on fixation)</b>					<b>60,0</b>	%		
20	Default value: 90 %								
21	<b>5. Emission reduction by sewage treatment plant</b>					<b>0,0</b>	%		
22	Default value: 0 %								
23									
24	Maximum amount/day at default value:						570 kg/day		
25									
26									
27									
28									

## Scaling Guidance of the Federal Environment Agency

Scaling under REACH offers an important option to check whether your conditions of use of a substance are safe, even if, for example, you use more of a product than it has been recommended in the safety data sheet of your supplier.

The German Federal Environment Agency published a guidance on scaling related to the environment – and a more detailed background report. Both are available on the internet. In addition you may also find the spreadsheet „REACH Scale Environment“. It supports you in checking an exposure scenario – with the individual figures of your company.

[http://reach-info.de/scaling\\_unter\\_reach.htm](http://reach-info.de/scaling_unter_reach.htm)



## Scaling – why?

If you use substances or mixtures classified as dangerous, you will more frequently receive extended safety data sheets with exposure scenarios in the future. Exposure scenarios describe conditions of safe use of the products. It can be that this information will be integrated in chapter 1 – 16 of the extended safety data sheets.

As downstream user you are in any case obliged to check whether your conditions of use are covered by the exposure scenario. If not, you might have to prepare your own chemical safety report according to REACH Art. 37.4 – including your own exposure assessments.

Whether the use of a substance or a mixture is safe or not depends on parameters which can be quantified in many cases. In a dyeing process, for example, it depends on the amount of the dye which stays on the material (degree of fixation). In his exposure scenario, your supplier can indicate which degree of fixation should be reached. Otherwise the amount of the substance which is released into the wastewater and the environment would be too high.

It might be, however, that you use the products under conditions which slightly differ from the description in the exposure scenario. Scaling enables you to check easily whether your use is nevertheless safe, without having to perform extensive exposure assessments.



## Scaling – how? 5 steps

We recommend performing scaling in five steps:

- Step 1: Check whether the exposure scenario contains quantified parameters that are determining the exposure (such as volume of the receiving water body)
- Step 2: Check whether the exposure scenario contains guidance on scaling (“Guidance to DU (downstream users) to evaluate whether he works inside the boundaries set by the ES”). Check which parameters can be changed (“scaling parameters”).
- Step 3: Identify the values of the scaling parameters for your uses.
- Step 4: Do the calculation with your figures.
- Step 5: Check whether your use is covered and decide on consequences.

### The Guidance on Scaling

Our Guidance on Scaling explains how to use scaling tools, in order to evaluate whether a use is safe or not. It is written for downstream users. In addition, we address manufacturers and formulators who want to develop scaling tools for their customers.

## Our advice: Make use of scaling tools!

Using scaling tools saves a lot of work and money. In our guidance, we give you three examples for scaling tools and their use.

## Do you want to provide product-specific scaling tools to your customer?

As part of the guidance, a template has been developed („REACH\_Scale\_Environment\_Template.xls“). Here you can enter product-specific data (such as maximum amount used per day). The template generates automatically a product-specific scaling tool. You can provide your customer with this scaling tool.

The template is available in an extended version for formulators. It allows to change the concentration of a substance in a mixture.

1	REACH Scale	Environment	Water
2			
3	<b>Data input for registrants/ downstream users</b>		
4	Please fill in the data relating to your product and, if necessary, a comment:		
5			<b>Example</b>
6	Name of the product	Cuprasol Blue 294	Lederplex 900
7			
8	<b>Value</b>	<b>Data</b>	<b>Unit</b>
9	PNEC surface water	1	µg/liter
10	Volume flow of the receiving water	180.000	m³/day
11	Volume flow of the sewage treatment plant	20.000	m³/day
12	Efficiency of the internal emission reduction	99	% decrease
13	Reduction of the substance in the process (fixation, depletion)	90	%
14	Emission reduced in the communal sewage treatment plant	0	%
15	Maximum amount used per day	570	kg/day
16			
17	<b>Upper limit of the input value</b>		
18	Emission into the sewage treatment plant max.		kg
19	Receiving water volume max.	2.000.000	m³/day
20			
21	Relevant substance for the calculation of the exposure	metal complex dye	
22			
23	<b>Remark 1:</b> Take the mean of the low water volume flow (MNQ) as volume of the receiving water. You can get this value from		
24	your local water authority.		
25	<b>Remark 2:</b> The maximum amount used per day results in a risk characterisation ratio (PEC/PNEC) = 0,99. It is the ratio between		
26	the predicted concentration of the substance in the environment ("PEC") and the concentration for which		
27	no adverse effects of the substance on aquatic organisms are expected.		
28	<b>Remark 3:</b> If the chemical safety assessment of the substance shows a critical value for the emission into the sewage treatment plant,		
29	(impact on microorganisms), type in the figure here.		
30	<b>Remark 4:</b> In the exposure assessment, the volume of the receiving water can't be higher than 1000 times of the		
31	volume of the sewage treatment plant. In REACH Scale a default value of 2.000.000 m³/day is taken as upper limit.		
32			

## Limits of Scaling

Scaling can be applied on selected parameters which have a linear relationship to the exposure. Scaling is only possible if the supplier has given guidance on how to scale. More information about the limits of scaling is given in chapter 4 of our guidance.

## You want to know more?

The guidance on scaling, the examples and the spreadsheets are available at:

[http://reach-info.de/scaling\\_unter\\_reach.htm](http://reach-info.de/scaling_unter_reach.htm)

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Federal Environment Agency (Umweltbundesamt), Dessau / Öko-Institut e.V., Head Office  
Freiburg, Germany

July 2011

The guidance on scaling has been developed within a project on behalf of the Federal Environment Agency, Dessau. Guidance, background report, the spreadsheet REACH Scale Environment for the product Lederplex 900 and the templates are available for free on the following website:

[http://reach-info.de/scaling\\_unter\\_reach.htm](http://reach-info.de/scaling_unter_reach.htm)

If you have further questions related to scaling, please don't hesitate to contact us:

**Contact:**

Nannett Aust	Umweltbundesamt, Dessau	nannett.aust@uba.de
Daniel Sättler	Umweltbundesamt, Dessau	daniel.saettler@uba.de
Dirk Bunke	Öko-Institut e.V., Freiburg	d.bunke@oeko.de
Rita Groß	Öko-Institut e.V., Freiburg	r.gross@oeko.de