Designing chemical mixtures with the least possible impact on health and environment

Laurence BOULANGE, EIFFAGE Infrastructures

European Agency for Safety and Health at Work

Healthy Workplaces

Risk Prevention Policy of EIFFAGE INFRASTRUCTURES

Achieve the « 100 % Safety », our life-long goal
Design, use, products with the least amount of health impacts,
Eliminate or substitute any dangerous chemical whenever technically possible,
EIFFAGE INFRASTRUCTURES, official Partner of EU-OSHA

European Agency for Safety and Health at Work

Healthy Workplaces

Ensure the health protection of the public, the local residents, the employees

Ensure the environment protection of the production sites and the work area

Ensure the neutrality of the products to the customers

The development of innovative road products requires effort of research and innovation on several years

FORMULA© SAFE

- **Computerised tool that assists the formulation of chemical mixtures,**
- **Helps design finished products with the least amount of health and environmental impacts, even before handling or tests in our laboratories**
- **Propose some substitutes**
- **Indicates the substances that require special conditions of storage and transport at the product design stage**
- **Product of the CLP calculations according to GHS/CLP rules**
- **Allow a better control of raw materials**
- **Secure all the production line**

Different Modules

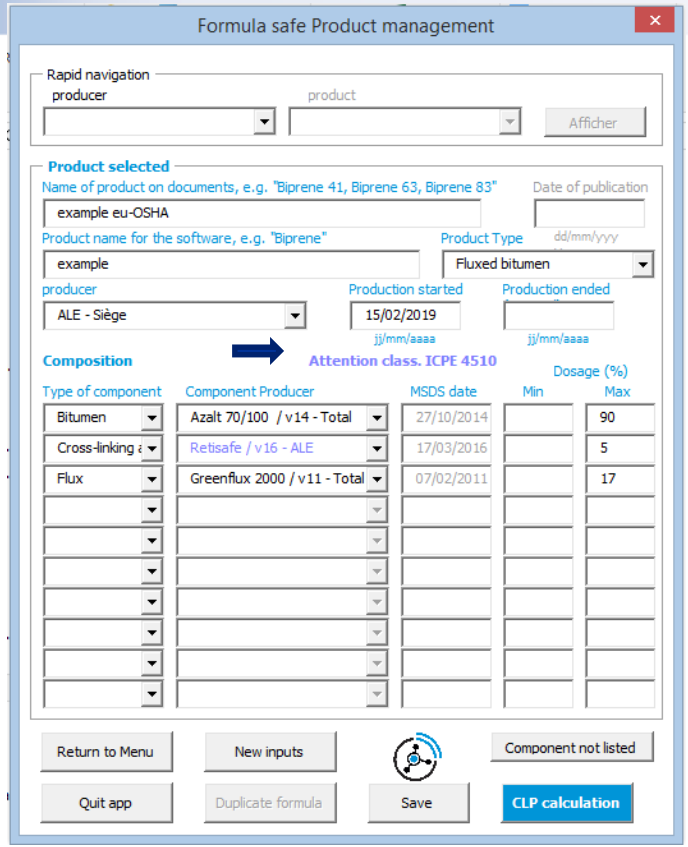
Formula Calculator

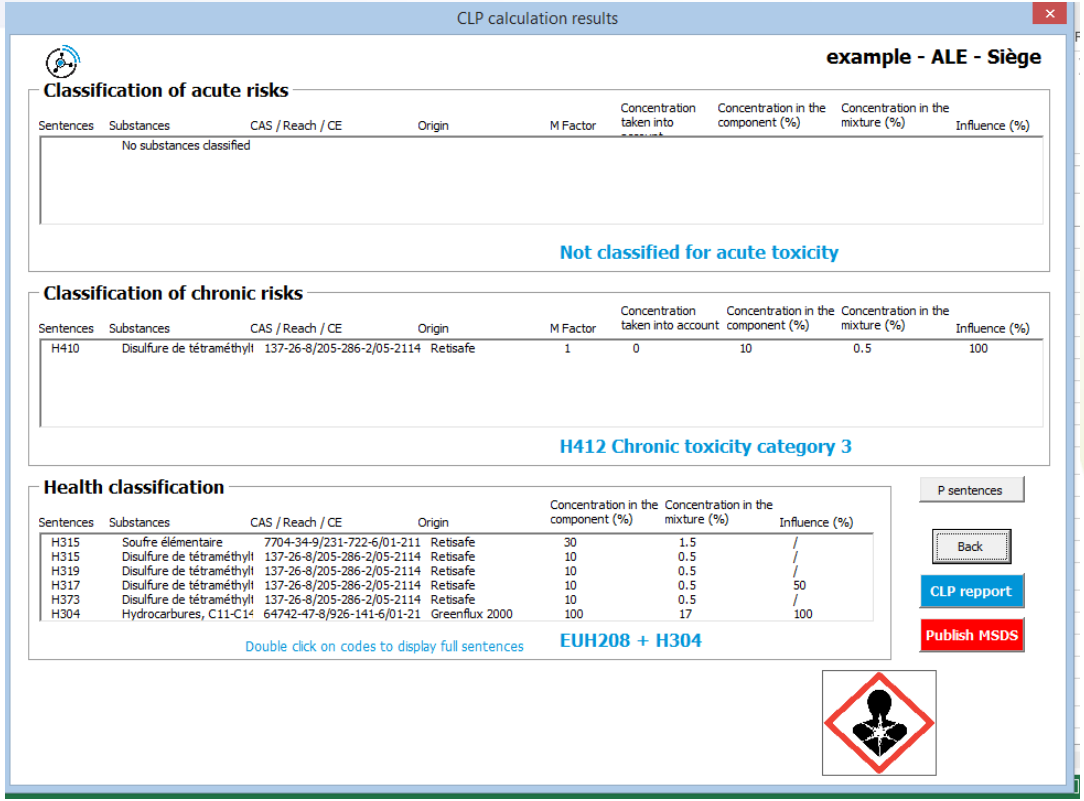
CLP Calculation

MSDS Production

Available in EN / FR / SP

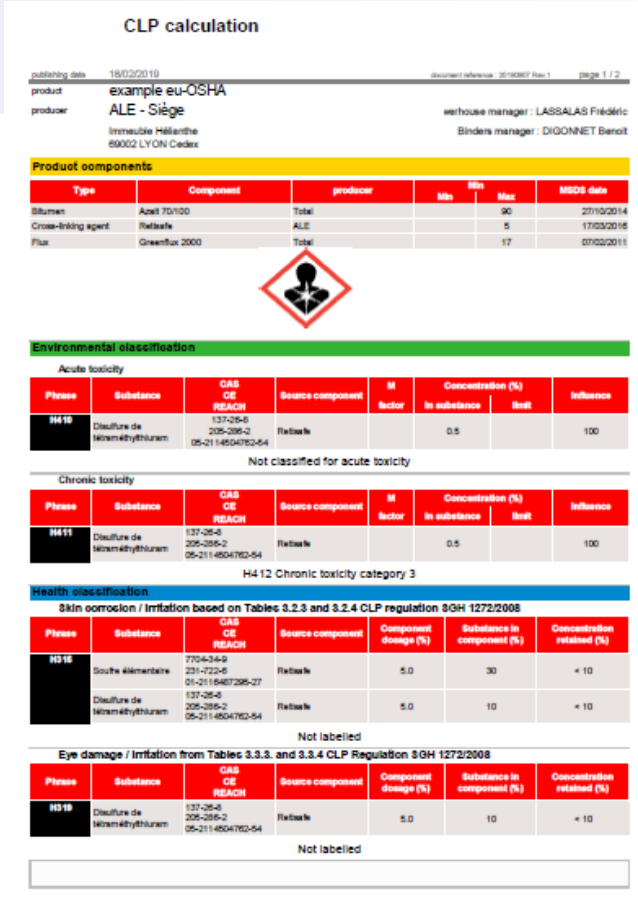
Formula calculator





Incidence calculation

CLP calculation



CLP calculation

publishing date 18/02/2019 page 1 / 2

product example eu-OSHA

producer ALE - Siège
Immeuble Hélianthe
69002 LYON Cedex

werhouse manager : LASSALAS Frédéric
Binders manager : DIGONNET Benoit

Product components

Type	Component	producer	Min	Max	MSDS date
Bitumen	Azalt 70/100	Total		90	27/10/2014
Cross-linking agent	Retisafe	ALE		5	17/03/2016
Flux	Greenflux 2000	Total		17	07/02/2011

Environmental classification

Acute toxicity

Phrase	Substance	CAS CE REACH	Source component	M factor	Concentration (%) in substance	Concentration (%) limit	Influence
H410	Disulfure de tétraméthylthiuram	137-26-8 205-286-2 05-2114504762-54	Retisafe		0.5		100

Not classified for acute toxicity

Chronic toxicity

Phrase	Substance	CAS CE REACH	Source component	M factor	Concentration (%) in substance	Concentration (%) limit	Influence
H411	Disulfure de tétraméthylthiuram	137-26-8 205-286-2 05-2114504762-54	Retisafe		0.5		100

H412 Chronic toxicity category 3

Health classification

Skin corrosion / irritation based on Tables 3.2.3 and 3.2.4 CLP regulation SGH 1272/2008

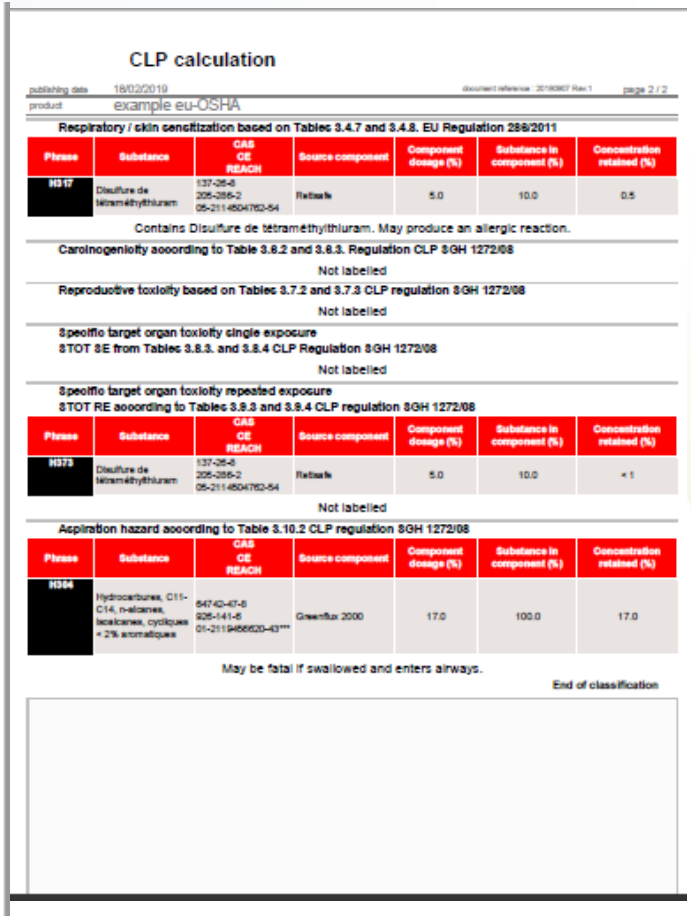
Phrase	Substance	CAS CE REACH	Source component	Component dosage (%)	Substance in component (%)	Concentration retained (%)
H315	Soufre élémentaire	7704-34-9 231-722-6 01-2119487295-27	Retisafe	5.0	30	< 10
	Disulfure de tétraméthylthiuram	137-26-8 205-286-2 05-2114504762-54	Retisafe	5.0	10	< 10

Not labelled

Eye damage / irritation from Tables 3.3.3. and 3.3.4 CLP Regulation SGH 1272/2008

Phrase	Substance	CAS CE REACH	Source component	Component dosage (%)	Substance in component (%)	Concentration retained (%)
H319	Disulfure de tétraméthylthiuram	137-26-8 205-286-2 05-2114504762-54	Retisafe	5.0	10	< 10

Not labelled



CLP calculation

publishing date 18/02/2019 page 2 / 2

product example eu-OSHA

Respiratory / skin sensitization based on Tables 3.4.7 and 3.4.8. EU Regulation 286/2011

Phrase	Substance	CAS CE REACH	Source component	Component dosage (%)	Substance in component (%)	Concentration retained (%)
H317	Disulfure de tétraméthylthiuram	137-26-8 205-286-2 05-2114504762-54	Retisafe	5.0	10.0	0.5

Contains Disulfure de tétraméthylthiuram. May produce an allergic reaction.

Carcinogenicity according to Table 3.6.2 and 3.6.3. Regulation CLP SGH 1272/08

Not labelled

Reproductive toxicity based on Tables 3.7.2 and 3.7.3 CLP regulation SGH 1272/08

Not labelled

Specific target organ toxicity single exposure STOT SE from Tables 3.8.3. and 3.8.4 CLP Regulation SGH 1272/08

Not labelled

Specific target organ toxicity repeated exposure STOT RE according to Tables 3.9.3 and 3.9.4 CLP regulation SGH 1272/08

Phrase	Substance	CAS CE REACH	Source component	Component dosage (%)	Substance in component (%)	Concentration retained (%)
H373	Disulfure de tétraméthylthiuram	137-26-8 205-286-2 05-2114504762-54	Retisafe	5.0	10.0	< 1

Not labelled

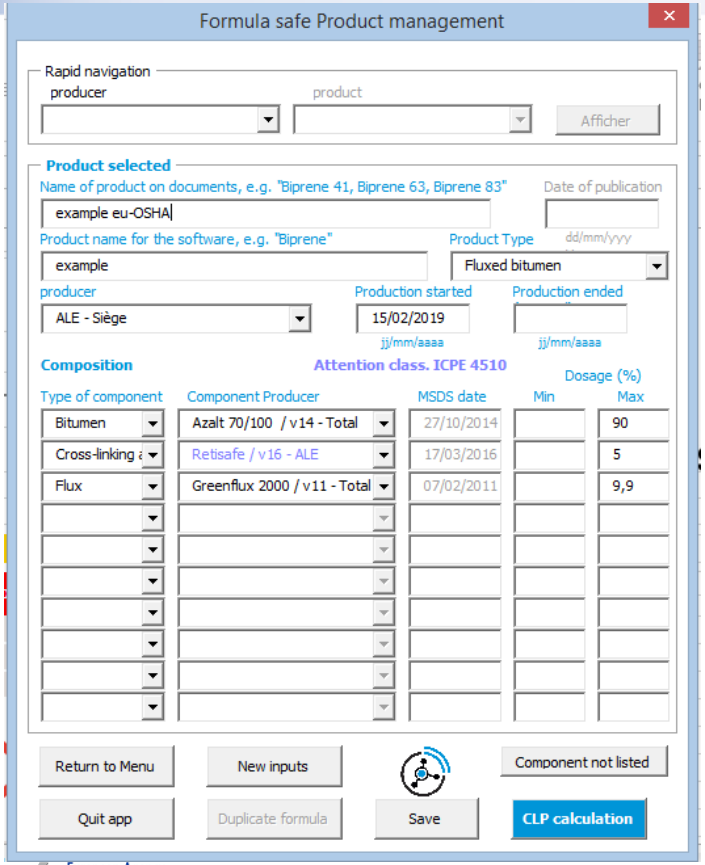
Aspiration hazard according to Table 3.10.2 CLP regulation SGH 1272/08

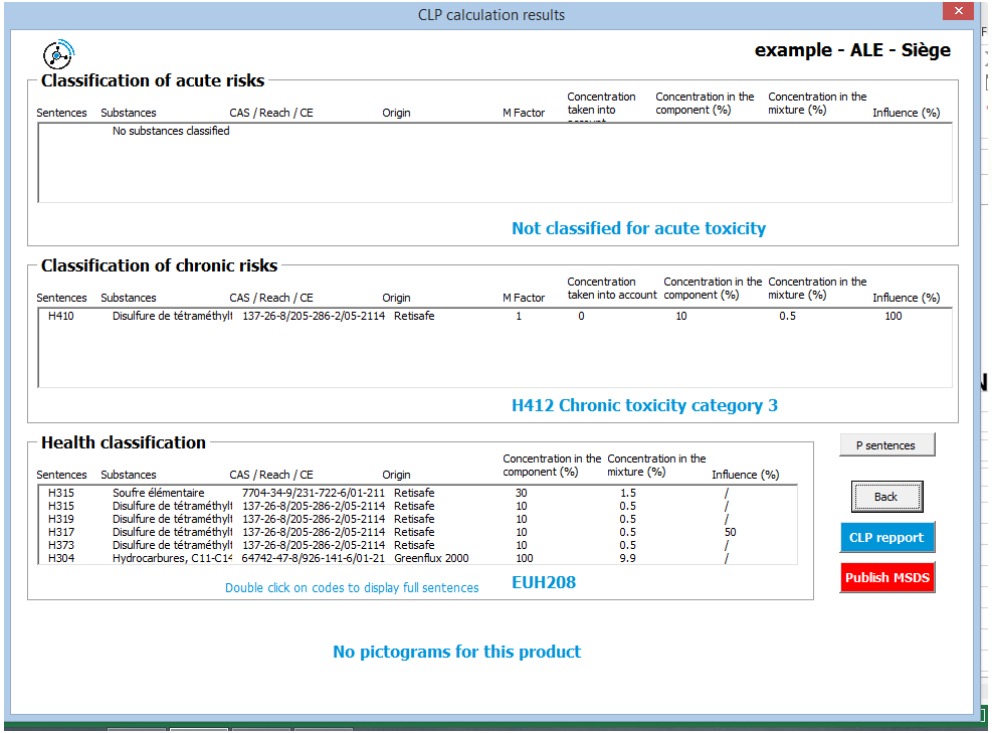
Phrase	Substance	CAS CE REACH	Source component	Component dosage (%)	Substance in component (%)	Concentration retained (%)
H304	Hydrocarbures, C11-C14, n-alcanes, isoalcanes, cycliques < 2% aromatiques	64742-47-8 926-141-6 01-2119456620-43***	Greenflux 2000	17.0	100.0	17.0

May be fatal if swallowed and enters airways.

End of classification

Design chemical mixture





+ Third module editing MSDS

For further details : Website EU- OSHA Good practice exchange plateform

OBJECTIVE

100%
SAFETY

IS OUR LIFE-LONG GOAL

EIFFAGE