One fish, two fish, purple fish, orange fish: **Environmental Classification for Workplace and Transport**

Kimberly Bull, M.Sc. – Senior Regulatory Analyst, Sphera Solutions – kbull@sphera.com

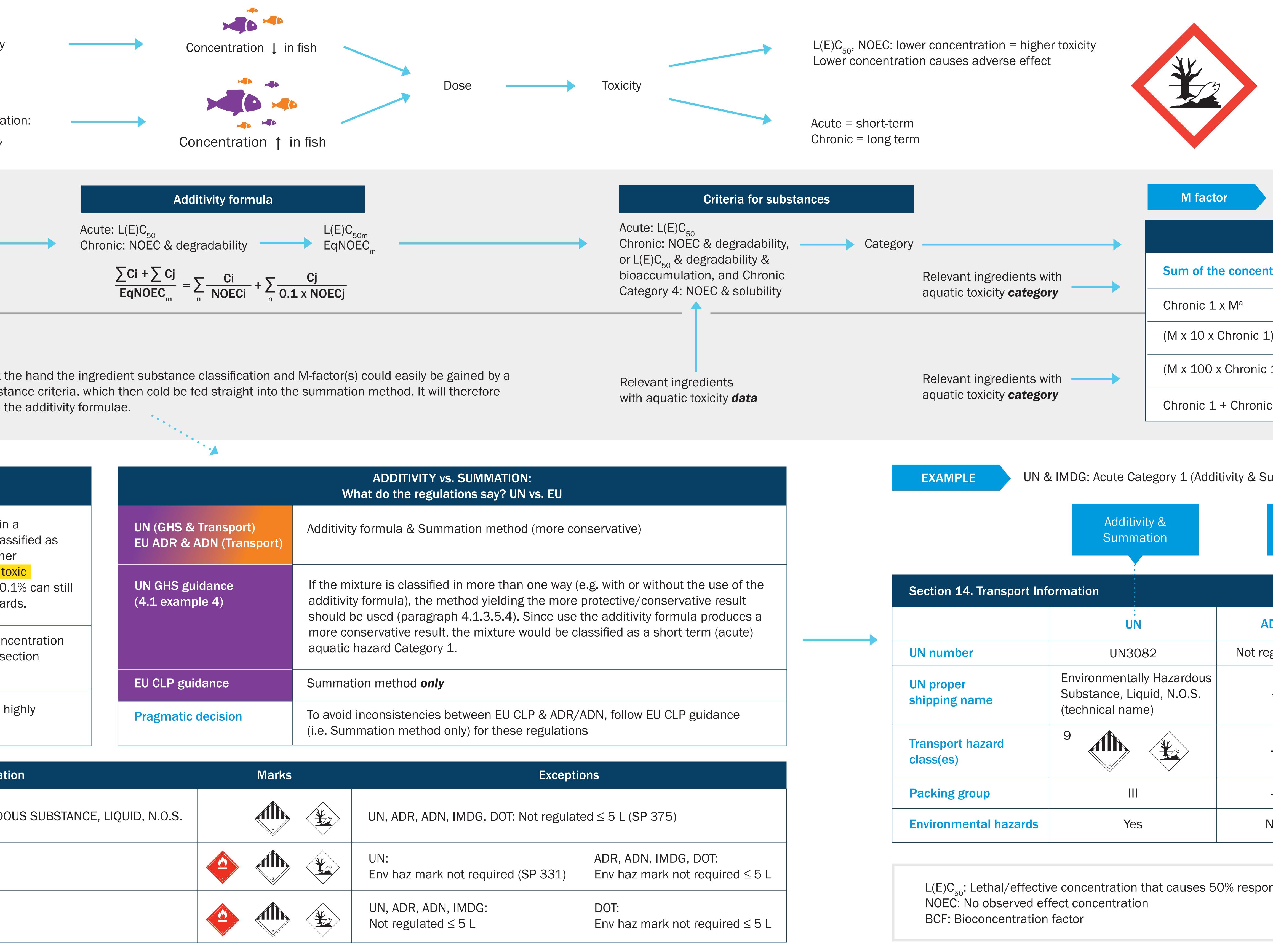
AQUATIC TOXICITY in a nutshell: 'The dose makes the poisor	r'	Degradability Bioaccumulation: BCF, Log K _{ow}	Concentration 1 in Concentration 1	Dose Toxicity	
ENVIRONMENTALLY HAZARDOUS for workplace (GHS):		ROIOVANT INOROLIONTS	Acute: $L(E)C_{50}$ Chronic: NOEC & degradability $\frac{\sum Ci + \sum Cj}{EqNOEC_{m}} = \sum_{n} \frac{Ci}{NOECi} + \sum_{n} \frac{1}{0}$	L(E)C _{50m} EqNOEC _m Cj .1 x NOECj	
EU CLP GUIDANCE (4.1.4.5 Summation method only		NOTICE: With the aquatic toxicity data at the hand the indirect comparison with the substance criteria, we usually not be necessary to use the additivity for REDIENTS:	which then cold be fed straight into th	Rele	
UN (GHS & Transport) EU ADR & ADN (Transport)	concentration equal to or gr Acute and/or Chronic 1 and ingredients, unless there is	ns say? UN vs. EU of a mixture are those which are present in a eater than 0.1 % (w/w) for ingredients classified as equal to or greater than 1% (w/w) for other a presumption (e.g. in the case of highly toxic ent present at a concentration less than 0.1% can still	UN (GHS & Transport) EU ADR & ADN (Transport) UN GHS guidance	What do the regulations say? UN vs. EU Additivity formula & Summation method (more conservative) If the mixture is classified in more than one way (e.g. with or second s	
EU CLP	be relevant for classifying th Generally, for substances cla	ne mixture for aquatic environmental hazards. assified as 'Acute 1' or 'Chronic 1' the concentration 0,1/M) %. (For explanation M-factor see section	(4.1 example 4) EU CLP guidance	 additivity formula), the method yielding the more protect should be used (paragraph 4.1.3.5.4). Since use the admore conservative result, the mixture would be classified aquatic hazard Category 1. Summation method only 	
Pragmatic decision		to avoid inconsistencies (and account for highly CLP (i.e. 0.1/M %) for all regulations	Pragmatic decision	To avoid inconsistencies between EU CLP & ADR/ADN, follow (i.e. Summation method only) for these regulations	

	Product (liquid)	Classification	 Marks	Excepti	ions
	Environmentally hazardous (Env haz)	UN3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	9	UN, ADR, ADN, IMDG, DOT: Not regulat	ted \leq 5 L (SF
LIQUIDS	Env haz & flammable	UN1993 FLAMMABLE LIQUID, N.O.S.	9	UN: Env haz mark not required (SP 331)	ADR, ADI Env haz r
	Env haz & flammable & viscous	UN1993 FLAMMABLE LIQUID, N.O.S.		UN, ADR, ADN, IMDG: Not regulated $\leq 5 L$	DOT: Env haz r





ABSTRACT: What do you get when you cross an additivity formula, a summation method and the symbol P? A complex combination of aquatic toxicity, degradability, bioaccumulation, solubility, relevant ingredients, ingredient classifications, M factors and marine pollutants (and probably a headache!). Especially since many GHS countries and Transport modes have implemented the environmental classification criteria in various shades of purple and orange. Let's try to understand the differences we might see in Section 14 of the SDS for environmentally hazardous substances, as well as the data and calculations behind them.



ENVIRONMENTALLY HAZARDOUS for transport:

All regulations: Categories Acute 1, Chronic 1 & 2 ADN (tank vessels): Categories Acute 2 & 3, Chronic 3

Acute: L(E)C₅₀ | Chronic: NOEC & degradability

Summation meth	od	
ntrations (in %) of ingredients classified as:		Mixture is classified as:
	≥25%	Chronic 1
1) + Chronic 2	≥25%	Chronic 2
c 1) + (10 x Chronic 2) + Chronic 3	≥25%	Chronic 3
ic 2 + Chronic 3 + Chronic 4	≥25%	Chronic 4

UN & IMDG: Acute Category 1 (Additivity & Summation) | ADR & ADN: Acute Category 2 (Summation only) | DOT: Marine pollutant (§171.8)

Summation only		GHS (not MarPol for mixtures)	MarPol (≥1% PP or ≥10% P ingredients)	
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	·. ADN	: IMDG	DOT	
egulated	9006	UN3082	UN3082	
-	Environmentally Hazardous Substance, Liquid, N.O.S.	Environmentally Hazardous Substance, Liquid, N.O.S. (technical name)	Environmentally Hazardous Substance, Liquid, N.O.S. (technical name)	
-	9		9	
-	_			
No	Yes	Yes	Yes	

nse	Log K _{ow} : Octanol/water partition coefficient	SP: Special provision
	MarPol: Marine pollutant	Workplace
	PP: Severe marine pollutant, P: Marine pollutant	Transport