CRED-template question	Template question no.	Corresponding data extraction question(s) used to gather the information needed to answer the CRED question(s)
Reliability		
Test setup		
1. Is a guideline method (e.g., OECD/ISO) or modified guideline used? (of minor importance for study reliability)	18	During which conditions are the tests performed (guidelines, GLP?)?
2. Is the test performed under GLP (good laboratory practices) conditions? (of minor importance for study reliability)		
	19	How has the validity of the test been tested? (e.g. control survival, growth)
3. If applicable, are validity criteria fulfilled (e.g. control survival, growth)?		
4. Are appropriate controls performed (e.g. seawater control)? (pH controls not needed, not relevant for scrubber water)	5	Which controls have been used? (e.g. Seawater, pH)
Test compound		
5. Is the test substance identified clearly with name or CAS-number? Are test results reported for the appropriate compound?	30	Was the scrubber water characterised and sufficiently reported?
6. Is the purity of the test substance reported? Or, is the source of the test substance trustworthy?	1	Is the study a whole effluent test using scrubber water?
7. If a formulation is used or if impurities are present: Do other ingredients in the formulation exert an effect? Is the amount of test substance in the formulation known?	6	What type of testwater/medium was used (natural water, etc.?)?
Test organism		
8. Are the organisms well described (e.g. scientific name, weight, length, growth, age/life stage, strain/clone, sex, if appropriate)?	20-22, 28, 29	Which descriptive parameteras are given for the tested organisms (e.g. scientific name, weight, length, growth, age/life stage, strain/clone, sex, if appropriate)?
9. Are the test organisms from a trustworthy source and acclimatized to test conditions? Have the organisms not been pre-exposed to test compound or other unintended stressors?	23 and 24	Where are the test organisms from and were they acclimatized to the test conditions?
	25	Have the organisms been pre-exposed to test compound or other unintended stressors?
Exposure conditions		
10. Is the experimental system appropriate for the test substance, taking into account its physico-chemical characteristics?	8	Which material was used for the test container (e.g. glass, plastic, metal)?
	9	Was the test system static or dynamic (flow-through, renewal, continous flow,
	10	Was the test system open or closed?
11. Is the experimental system appropriate for the test organism (e.g., choice of medium or test water, feeding, water characteristics, temperature, light/dark conditions, pH, oxygen content)? Have conditions been stable during the test?	26	How high was the mortality (or equivalent) in the control (if applicable)?
	14	Whas the test performed in light or darkness?
	4	Was the test chronic or acute?
	31-35	How did the conditions (e.g. temperature, salinity, pH, oxygen content, nutrient content) vary over the test period?
	16	Was feeding included in the study and if so, was excess food removed?
	NA	NA
12. Were exposure concentrations below the limit of water solubility (taking the use of a solvent into account)? If a solvent is used, is the solvent within the appropriate range and is a solvent control included?		
13. Is a correct spacing between exposure concentrations applied?	11	Which concentrations of scrubber water were tested?
	12	How many exposure levels were tested and what was the scaling factor between exposure levels?
14. Is the exposure duration defined?	13	What was the exposure duration?
15. Are chemical analyses adequate to verify concentrations of the test substance over the duration of the study?	17	When during the test were chemical analyses perfomed (for verifying of substance concentration over the duration of the study)?
16. Is the biomass loading of the organisms in the test system within the appropriate range (e.g. < 1 g/L)?	27	What was the biomass loading of the organisms in the test system?
Statistical design and biological response		
	7	How many replicates were used in the test?
17. Is a sufficient number of replicates used? Is a sufficient number of organisms per replicate used for all controls and test concentrations?		
18. Are appropriate statistical methods used?	37-40	Which statistical methods (summary statistics) were used to analyse the results?
19. Is a concentration-response curve observed? Is the response statistically significant?	41	Was a concentration-response curve observed and if so, was it statistically significant?
20. Are sufficient data available to check the calculation of endpoints and (if applicable) validity criteria (e.g., control data, concentration-response curves)?	42	Which raw data is provided for the tested endpoints? (enough to check the calculations?)
	43	Which raw data is provided for the validity criteria (e.g. control data, consentration-response curves)?
Relevance		**Relevance**
Biological and exposure relevance		
	20-21	Which test specie(s) were used?
1. Is the species tested relevant for the compartment under evaluation?		
2. Are the organisms tested relevant for the tested substance?		
3. Are the reported endpoints appropriate for the regulatory purpose?	36	Which endpoints were tested?
4. Are the reported endpoints appropriate for the investigated effects or the mode of action of the test substance?		
5. Is the effect relevant on a population level?	36-41	
6. Are appropriate life stages studied?	28	Which life stages were studied?
7. Is the magnitude of effect statistically significant and biologically relevant for the regulatory purpose (e.g., EC10, EC50)?	36-41	What were the reported results/effects of the tested enpoints (e.g. EC-values) and were they statistically significant?
8. Are the experimental conditions relevant for the tested species?	1-35	
9. Is the exposure duration relevant and appropriate for the studied endpoints and species?	4, 13, 20-29, 36	

10. If recovery is studied, is this relevant for the framework for which the study is evaluated?	NA	NA
11. In case of a formulation, other mixture, salts, or transformation products, is the substance tested representative and relevant for the substance being assessed?	2, 30	What was the composition of the scrubber water with respect to e.g. metals, PAHs, pH?
12. Is the tested exposure scenario relevant for the substance?	15	How and how often was the scrubber water administred in the test?
13. Is the tested exposure scenario relevant for the species?	15, 20-29	

Relevant information in addition to what is needed for the CRED analysis

Ship type the scrubber water is from (or experimental scrubber type)	3	Which scrubber typ was the scrubber water from (e.g. open, closed, hybrid, experimental)?
Scrubber type (open, closed, hybrid, experimental)	2	Which ship type (if experimental, engine type) was the scrubber water from?

Relevant information in addition to what is needed for the Technical guidelines

Which taxonomic/functional group does the tested species belong to?	22	Trophic level/Taxonomic group
Growth (weight, length, growth rate, biomass)	36	
Number (cells, population)	36	

(NOTE: one column per endpoint per reference)		Required/ Optional/ if applicable	Data type	Question
Experimental design	1	Required	Metadata	Is the study a whole effluent test using scrubber water? [Y/N]
	2	Required	Metadata	Which scrubber typ was the scrubber water from? [open, closed, hybrid, experimental]
	3	Optional	Metadata	Which ship type was the scrubber water from? (if experimental, engine type)
	4	Required	Metadata	Was the test chronic or acute? [chronic/acute]
	5	Required	Metadata	Which type of controls were used? (e.g. Seawater, pH)
	6	Required	Metadata	What type of testwater was used (e.g. natural water)?
	7	Required	Metadata	How many replicates were used in the test?
	8	Required	Metadata	Which material was used for the test container (e.g. glass, plastic, metal)?
	9	Required	Metadata	Was the test system static or dynamic (flow-through, renewal, continous flow, intermittent flow)?
	10	Required	Metadata	Was the test system open or closed?
	11	Required	Data	Which concentrations of scrubber water were tested?
	12	Required	Data	How many exposure levels were tested and what was the scaling factor between exposure levels?
	13	Required	Data	What was the exposure time?
	14	Required	Metadata	Whas the test performed in continuous light, photoperiod or darkness?
	15	Required	Metadata	In which way and how often was the scrubber water added / changed / renewed in the test?
	16	If applicable	Metadata	Was feeding included in the study and if yes, was excess food removed?
	17	Required	Metadata	At which time points were chemical analyses perfomed (for verifying of substance concentration over the duration of the study)?
	18	Required	Metadata	During which conditions were the tests performed (guidelines, GLP)?
	19	Required	Metadata	How has the validity of the test been tested? (e.g. control survival, growth)
Test specie	20	Required	Data	Species name (scientific)
	21	If applicable	Data	Species name (common) (if applicable)
	22	Required	Data	Trophic level/Taxonomic group
	23	Required	Metadata	Where were the test organisms from (laboratory cultures or collected in the field)?
	24	Required	Metadata	Were the test organisms acclimatized to the test conditions?
	25	Required	Metadata	Were the test organisms pre-exposed to test compound or other unintended stressors?
	26	If applicable	Data	How high was the mortality (or equivalent) in the control (if applicable)?
	27	Required	Data	What was the biomass loading of the organisms in the test system (e.g. g wet weight/L)?
	28	Required	Data	Which life stage(s) of the test organism(s) were studied?
	29	If applicable	Data	Other relevant descriptive parametes for the tested organism (e.g. size, sex) (if applicable)
Measured varables	30	Required	Metadata	Was the scrubber water characterised and sufficiently reported? [Y/N]
	31	Required	Data	How did salinity vary over the test period? (discrete values or range)
	32	Required	Data	How did the temperature vary over the test period? (discrete values/range)
	33	Required	Data	How did the pH vary over the test period? (discrete values or range)
	34	Required	Data	How did the oxygen content vary over the test period? (discrete values/range)
	35	Required	Data	How did the nutrient content vary over the test period? (discrete values/range)
In this section only one of the variables should be filled in. If multiple endpoints have been tested, make one column for each endpoint.				
Which endpoint(s) was tested and was it statistically significant? (one column per endpoint, write yes/no depending on significance to indicate the tested enpoint) [Y/N]	36a	If applicable	Data	Growth (weight, length, growth rate, biomass)
	36b	If applicable	Data	Number (cells, population)
	36c	If applicable	Data	carbon uptake (algae)
	36d	If applicable	Data	filtration rate
	36e	If applicable	Data	proliferation (cells)
	36f	If applicable	Data	yield (algae/plants)
	36g	If applicable	Data	Immobilisation
	36h	If applicable	Data	Reproduction (number of young per female) (fecundity?)
	36i	If applicable	Data	Survival (life stage)
	36j	If applicable	Data	Mortality
	36k	If applicable	Data	Fertilisation success
	36l	If applicable	Data	Malformations/abnormal growth/development
	36m	If applicable	Data	Time to hatch
	36n	If applicable	Data	Hatching (rate, time, percentage)
	36o	If applicable	Data	Sex ratio
	36p	If applicable	Data	Biomass
	36q	If applicable	Data	Development (egg, embryo, life stage)
	36r	If applicable	Data	Other (describe)
Which statistical methods (summary statistics) were used to analyse the results and what were the reported values? [reported value + confidence interval]	37	If applicable	Data	EC10 or LC10 (indicate which)
	38	If applicable	Data	EC50 or LC50 (TLm: median tolerance limit) (indicate which)
	39	If applicable	Data	ECx or LCx (indicate which)
	40a	If applicable	Data	NOEC
	40b	If applicable	Data	LOEC (include if NOEC is missing)
	40c	If applicable	Data	MATC (maximum acceptable toxicant concentration: the geometric mean of NOEC and LOEC) (single value) (include if NOEC is missing)
	40d	If applicable	Metadata	If EC10, LC10 or NOEC is missing, is enough data provided to calculate or estimate these values?

	40e	If applicable	Data	Other (describe)
	41	Required	Data	Was a concentration-response curve observed and if so, was it statistically significant?
Data availability [describe the available data + Y/N]	**42**	Required	Metadata	Which raw data is provided for the tested endpoints? (enough to check the calculations?)
	43	Required	Metadata	Which raw data is provided for the validity criteria (e.g. control data, concentration-response curves)?
Risk assessment	**44**	Required	Data	Is there a statment/recommendation regarding the risk of discharging scrubber water to the marine environment? If yes, what?
Funding source	**45**	Required	Data	What is the funding source of the study?