MANUAL FOR INVESTIGATION OF HPV CHEMICALS

CHAPTER 2: SIDS, THE SIDS PLAN AND THE SIDS DOSSIER[1]

Annex 1: Guidance for Completing a SIDS Dossier

In the following form for data submission SIDS elements are clearly stated as such and marked with an asterisk (*). Those elements which are specifically requested for inorganic chemicals are marked with a dagger (†). Where available, templates for Robust Study Summaries are framed.

Form and Guidance for preparing and submitting the SIDS DOSSIER (INCLUDING ROBUST STUDY SUMMARIES)

Cover Page:

SIDS DOSSIER ON THE HPV CHEMICAL

……

CAS No.: …….

Sponsor Country: …….

Date of submission to OECD: ……..

[1] This document was prepared by the OECD Secretariat based on the agreements reached in the OECD Existing Chemicals Programme up to October 2003.

CONTENTS OF THE SIDS DOSSIER

Key:

* = Data elements required in the SIDS
† = Data elements specially required for inorganic chemicals
(*) = Data elements to consider based on chemical properties or exposure to environmental compartments

4. ENVIRONMENTAL TOXICITY

This section contains reporting requirements for SIDS elements and for non-SIDS elements. Data for the latter should be included because it may be applicable to the assessment of the hazard of the chemical. Where available, templates for Robust Study Summaries have been included.

It should always be clearly noted where aquatic tests were performed at measured or nominal concentration above the solubility limit in the test medium. If no mortality or other effects are observed, then the LC_{50}, EC_{50} and NOEC should be indicated as being above the stated solubility limit in the test medium. If solvents are used to enhance the solubility of poorly water-soluble substances, then this should be clearly stated. However, testing at the solubility limit, without solvents, is preferred.

For substances that decompose in water, the LC_{50}, EC_{50} and NOEC values should be expressed in terms of the measured concentration or loading of the parent substance realising that any substantial amount of breakdown product needs to be identified, quantified, or possibly tested separately.

In general, more weight should be given to studies performed in closed systems where care was taken to minimise material loss.

Specific guidance on the testing and interpretation of the results for difficult substances, e.g. poorly water-soluble substances, volatile substances, substances that degrade in the test system etc., can be found in the **OECD Guidance Document on Aquatic Toxicity Testing of Difficult Substance and Mixtures** (Series on Testing and Assessment No 23, ENV/JM/MONO(2000)6) as well as in the OECD Guidance Document on the use of the Harmonised system for the Classification of Chemicals which are Hazardous to the Aquatic Environment (Annex 2, Section 3.5 of the Harmonised Integrated Hazard Classification System for Chemical Substances and Mixtures).

4.1 *Acute Toxicity to Fish

Acute Toxicity to Fish is a **SIDS element**. The relevant Test Guideline for Acute Toxicity to is **OECD Test Guideline 203, 'Fish, Acute Toxicity Test'.**

OECD Test Guidelines 204, 'Fish, Prolonged Toxicity Test: 14-day Study, 212, 'Fish, Short-term Toxicity Test in Embryo and Sac-Fry Stages' as well as **Test Guideline 215, 'Fish, Juvenile Growth Test'** might also be considered relevant for this element.

A Robust Study Summary template is available for Acute Toxicity to Fish.

Test Substance

Identity:

Remarks *(Use for any pertinent, test substance-specific remarks.)*

Method

Method/guideline followed *(experimental/calculated)*:
Test type *(static, semi-static, flow-through, field observation):*
GLP: Yes [ ] No [ ]
Year *(study performed):*
Species/Strain/Supplier:
Analytical Monitoring:
Exposure period*[Duration]:*
Statistical methods:

Test Conditions: (*Detail and discuss any significant protocol deviations, and detail differences from the guideline followed including the following as appropriate:*

- *Test fish (Age/length/weight, loading, pretreatment):*
- *Test conditions, for example:*
    - *Dilution water source:*
    - *Dilution water chemistry (hardness, alkalinity, pH, TOC, TSS, salinity):*
    - *Stock and test solution and how they are prepared:*
    - *Concentrations dosing rate, flow-through rate, in what medium:*
    - *Vehicle/solvent and concentrations:*
    - *Stability of the test chemical solutions:*
    - *Exposure vessel type (e.g., size, headspace, sealed, aeration, lighting, # per treatment):*
    - *Number of replicates, fish per replicate:*
    - *Water chemistry in test (D.O., pH) in the control and one concentration where effects were observed:*
- *Test temperature range:*
- *Method of calculating mean measured concentrations (i.e. arithmetic mean, geometric mean, etc.) :*

Results

Nominal concentrations *(as mg/L):*
Measured concentrations *(as mg/L):*
Unit *(results expressed in what unit):*
Element value *(e.g. LC_{50}, LC_o, LL_{50}, or LL_0 at 48, 72 and 96 hours, etc., based on measured or nominal: concentrations):*
Statistical results *(as appropriate*):

Remarks **(***Discuss if the effect concentration is greater than the solubility of the substance in the test medium. Describe additional information that may be needed to adequately assess data for reliability and use, including the following:*

- *Biological observations:*
- *Table showing cumulative mortality:*
- *Lowest test substance concentration causing 100% mortality:*
- *Mortality of controls:*
- *Abnormal responses:*
- *Reference substances (if used) – results:*
- *Any observations, such as precipitation that might cause a difference between measured and nominal values:*

Conclusions

Remarks: *(Identify source of comment, i.e. author and/or submitter)*

Reliability

(Data reliability code, e.g. Klimisch code, if used, possibly a flag for 'key study')

Remarks: *(The rationale for the reliability code should be described clearly as should the process by which the "Reliability" decision was made)*

References *(Free Text)*

Other

Last changed: *(administrative field for updating)*
Order number for sorting: *(administrative field)*

Remarks *(Use for any other comments necessary for clarification.)*

4.2 *Acute Toxicity to Aquatic Invertebrates (e.g. Daphnia)

Acute Toxicity to Aquatic Invertebrates (e.g. Daphnia) is a **SIDS element**. The relevant Test Guideline for Acute Toxicity to Aquatic Invertebrates (e.g. Daphnia) is **OECD Test Guideline 202, Part 1, 'Daphnia sp., Acute Immobilisation Test '.**

A Robust Study Summary template is available for Acute Toxicity to Aquatic Invertebrates (e.g. Daphnia).

Test Substance

Identity:

Remarks: *(Use for any pertinent, test substance-specific remarks.)*

Method

Method/guideline followed *(experimental/calculated)*:
Test type *(static, semi-static, flow-through, field observation):*
GLP: Yes [ ] No [ ]
Year: *(study performed):*
Analytical Monitoring:
Species/Strain:
Exposure period *[Duration]:*
Statistical methods:

Test Conditions (*Detail and discuss any significant protocol deviations, and detail differences from the guideline followed including the following as appropriate):*

- *Test organisms*
  - *Source, supplier, any pretreatment, breeding method:*
  - *Age at study initiation:*
  - *Control group:*
- *Test conditions*
  - *Stock solutions preparation (vehicle, solvent, concentrations) and stability:*
  - *Test temperature range:*
  - *Exposure vessel type (e.g., size, headspace, sealed, aeration, number per treatment):*
  - *Dilution water source:*
  - *Dilution water chemistry (hardness, alkalinity, pH, TOC, TSS, salinity, Ca/Mg ratio, Na/K ratio):*
  - *Lighting (quality, intensity and periodicity):*
  - *Water chemistry in test (D.O., pH) in the control and at least one concentration where effects were observed:*

- *Element (unit) basis (i.e. immobilisation) :*
- *Test design (number of replicates, individuals per replicate, concentrations):*
- *Method of calculating mean measured concentrations (i.e. arithmetic mean, geometric mean, etc.):*
- *Exposure period:*
- *Analytical monitoring:*

Results

Nominal concentrations (mg/L):
Measured concentrations (mg/L):

EC_{50}, EL_{50}, LC_0, LL_0, at 24, 48 hours (clearly state unit used :
Statistical results (as appropriate):

Remarks (*Discuss if the effect concentration is greater than the solubility of the substance in the test medium. Describe additional information that may be needed to adequately assess data for reliability and use including the following as appropriate):*

- *Biological observations*
    - *Number immobilised as compared to the number exposed:*
    - *Concentration response with 95% confidence limits:*
    - *Cumulative immobilisation:*
    - *Was control response satisfactory? (yes/no/unknown):*

Conclusions

Remarks: *(Identify source of comment, i.e. author and/or submitter)*

Reliability

(Data reliability code, e.g. Klimisch code, if used, possibly a flag for 'key study')

Remarks: *(The rationale for the reliability code should be described clearly as should the process by which the "Reliability" decision was made)*

References *(Free Text)*

Other

Last changed: *(administrative field for updating)*
Order number for sorting: *(administrative field)*

Remarks: *(Use for any other comments necessary for clarification.)*

4.3 *Toxicity to Aquatic Plants (e.g. Algae)

Toxicity to Aquatic Plants (e.g. Algae) is a **SIDS element**. The relevant Test Guideline for Toxicity to Aquatic Plants (e.g. Algae) is **OECD Test Guideline 201, 'Alga, Growth Inhibition Test'.**

A Robust Study Summary template is available for Toxicity to Aquatic Plants (e.g. Algae).

Test Substance

Identity:

Remarks: *(Use for any pertinent, test substance-specific remarks.)*

Method

Method/guideline followed *(experimental/calculated):*
Test type *(static/other):*
GLP: Yes [ ] No [ ]
Year *(study performed):*
Species/strain # and source:
Element basis *(i.e. number of cells/ml, area under the curve, growth rate, etc.):*
Exposure period *[Duration*]:
Analytical monitoring:
Statistical methods:

Test Conditions *(Detail and discuss any significant protocol deviations and detail differences from the guideline followed including the following as appropriate):*

- *Test organisms*
  - *Laboratory culture:*
  - *Method of cultivation:*
  - *Controls:*
- *Test Conditions*
  - *Test temperature range:*
  - *Growth/test medium chemistry (hardness, alkalinity, pH, TOC, TSS, dissolved oxygen, salinity, EDTA):*
  - *Dilution water source:*
  - *Exposure vessel type (e.g., size, headspace, sealed, aeration ,number per treatment):*
  - *Water chemistry in test (pH) in at least one replicate of each concentration (at start and end of the test):*
  - *Stock solutions preparation (vehicle, solvent, concentrations):*
  - *Light levels and quality during exposure:*
- *Test design (number of replicates, concentrations):*
- *Method of calculating mean measured concentrations (i.e. arithmetic mean, geometric mean, etc.):*

Results

Nominal concentrations (mg/L):
Measured concentrations (mg/L):
Unit*:*
Element value *(e.g. ErC_{50}, ErL_{50}, EbC_{50}, EbL_{50}, EC_{10}-CD, EL_{10}-CD, EC_{50}-CD, EL_{50}-CD, EL_{90}-CD, EC_{90}-CD, EC_0, or EL_0 at 24, 48, 72 or 96 hours). Note whether cells removed prior to measurement.*
NOEC, LOEC, or NOEL, LOEL:
Was control response satisfactory: Yes [ ] No [ ] Unknown [ ]
Statistical results (as appropriate):

Remarks *(Discuss if the effect concentration is greater than the solubility of the substance in the test medium. Describe additional information that may be needed to adequately assess data for reliability and use including the following):*

- *Biological observations*
    - *Cell density at each flask at each measuring point:*
    - *Growth curves:*
    - *Percent biomass/growth rate inhibition per concentration:*
    - *Observations:*

Conclusions

Remarks: *(Identify source of comment, i.e. author and/or submitter)*

Reliability

(Data reliability code, e.g. Klimisch code, if used, possibly a flag for 'key study')

Remarks: *(The rationale for the reliability code should be described clearly as should the process by which the "Reliability" decision was made)*

References *(Free Text)*

Other

Last changed: *(administrative field for updating)*
Order number for sorting: *(administrative field)*

Remarks *(Use for any other comments necessary for clarification.)*

4.5 (*) Chronic Toxicity to Aquatic Organisms

This is a **SIDS element**, in some circumstances (see section 2.3.2)**.**

A. Chronic Toxicity to Fish

Where data are available they should be reported. Details on the effects on reproduction, the embryo/larva and such other organisms may also be included here. The relevant Test Guideline is **OECD Test Guideline 210: 'Fish, Early –Life Stage Toxicity Test'**. There is no agreed Robust Study Summary template for Chronic Toxicity to Fish, however the minimum information to be reported is outlined below. The template for chronic toxicity to aquatic invertebrates could also be used.

Test Substance

Identity (purity):

Remarks: *(Use for any pertinent, test substance-specific remarks.)*

Method

Method: *[e.g. OECD, other (with the year of publication or updating of the method used)]*
GLP: Yes [ ] No [ ] ? [ ]
Type of test: static [ ]; semi-static [ ]; flow-through [ ]; other *(e.g. field test)* [ ]; open-system [ ]; closed-system [ ]
Species:
Endpoint: Length of fish [ ]; Weight of fish [ ]; Reproduction rate [ ]; Other [ ]
Exposure period:

Remarks:

Test Conditions: *(Detail and discuss any significant protocol deviations.)*

Results

Results: EC_{50} (..d) (mg/l); *(Endpoint)* EC_{xx} (..d) (mg/l); NOEC)(mg/l); LOEC (mg/l)
Analytical monitoring: Yes [ ] No [ ] ? [ ]

Reliability

(Data reliability code, e.g. Klimisch code, if used, possibly a flag for 'key study')

Remarks: *(The rationale for the reliability code should be described clearly as should the process by which the "Reliability" decision was made).*

Reference

B. Chronic Toxicity to Aquatic Invertebrates

The relevant Test Guideline for Chronic Toxicity to Aquatic Invertebrates (e.g. Daphnia Reproduction) is **OECD Test Guideline 211, '*Daphnia magna* Reproduction Test'.**

A Robust Study Summary template is available for Chronic Toxicity to Aquatic Invertebrates.

Field Name	Brief Instructions
Test Substance Identity	Chemical name and CAS# and EINECS #
Test Substance Remarks	Purity of material tested, noting impurities and their concentrations.
Method	Note specific OECD, EPA, ASTM, or other method.
Test Type	Static, semi-static, or flow-through.
GLP	Note whether Good Laboratory Practices were followed.
Year	Year study performed
Test Conditions	
Species	Name species used
Analytical Monitoring	Give analytical method used to measure chemical in water along with the limit of detection and limit of quantification.
Vehicle	If used, name the solvent/carrier in mg/L. Note whether a solvent control was used.
Temp	Note the mean (and maximum) test temperature during the test (^{o} C)
pH	Note the mean (and maximum) pH during the test.
Hardness	Report as $CaCO_3$ in mg/L
Exposure Period	Length of test in days.
Statistical method	Cite statistical methods used and appropriate reference(s).
Method Remarks	Provide the following information (if available): Test organism: source, supplier, any pretreatment, breeding method, age at study initiation and whether control group used. Test conditions: stock solution preparation (concentrations) and stability; exposure vessel type (i.e., size, headspace, sealed, aeration, number per treatment); dilution water source; dilution water chemistry (alkalinity, TOC, TSS, salinity); lighting (quality, intensity, and periodicity); water chemistry in test (DO) in the control and at least one concentration where effects were observed.

	Endpoints assessed: immobilisation, reproduction, mortality Test design: number of replicates and individuals per replicate; concentration; definitive test; range finding test results reported as measured concentration Method of calculating mean measured concentrations: i.e., arithmetic mean, geometric mean, etc.
Nominal Concentrations	Amount of chemical (preferably in mg/L) added to the test system. List all concentrations in test separated by commas.
Results	
Measured Concentrations	Amount of chemical (preferably in mg/L) measured in the test system that would represent the mean measured concentrations for the test. List all concentrations separated by commas.
Measured Concentration Remarks	List all measured data and time points consistent with the test type (static, semi-static, flow-through). Provide the N, mean, standard deviation, and range for all concentrations over the course of the test.
Precision	Pull-down menu with <, >, =, ≤, or ≥
Endpoint Type	Pull-down menu with NOEC, LOEC, MATC, LC50, EC50
Endpoint value	Concentration associated with the endpoint type. Place numeric value here and units below.
Units	Mass per unit volume (preferably in mg/L)
Concentration Type	Note whether endpoint value is based on nominal or measured concentration.
Statistical Results	Note statistical results, with appropriate p value.
Results Remarks	Discuss whether effect concentration is greater than the water solubility of the test chemical. Include as appropriate the following: Biological observations: mortality; number of young produced in control group; concentration response with 95% confidence limits; cumulative immobilisation; was control response satisfactory; note any physiological effects observed.
Study Strengths and weakness	Comment on whether physical effects were observed, the relevance of water solubility to test results, etc.
Conclusions Remarks	Note the study author's conclusions and whether the submitter agrees
Reliability	Note the reliability of the study (for example, "Klimisch" code). Present a narrative clarifying the rationale for the reliability code.
Reference	Present full citation of the study summarised.
General Remarks	Use for any other comments necessary for clarification.

4.6.1. Toxicity to Sediment Dwelling Organisms

This is not a SIDS element. Available data should be reported. Test Guidelines for toxicity to sediment dwelling organisms are under development: **OECD Test Guideline Proposal 218 'Sediment-Water Chironomid Toxicity Test Using Spiked Sediment' and OECD Test Guideline Proposal 219 'Sediment-Water Chironomid Toxicity Test Using Spiked Water'**.

A Robust Study Summary template is suggested for toxicity tests to sediment dwelling organisms.

Field Name	**Brief Instruction**
Test Substance	
Identity	Chemical name and CAS# and EINECS#
Test Substance Remarks	- Purity of material tested, impurities and their concentrations, - If product, give composition, - If used, name of the solvent/carrier and concentration in mg/L (reported to the water column) or in mg/kg d.w. (related to the sediment). Note whether a solvent control was used
Method	
Method	Note OECD draft proposal, ASTM or other (with the year of publication or updating of the method used)
GLP	Note whether Good Laboratory Practices were followed
Year	Year study performed
Method Remarks	- Note whether the substance is initially added to the sediment or the water column - Note the type of test : static, semi-static, flow through, field test, other
Test Conditions	
Species	Name species used
Endpoints	Mortality / Growth / Emergence / Development / Reproduction (several endpoints are possible)
Exposure Period	Length of test in days
Test Conditions Remarks	- Formulated or natural sediment, - (water only tests should be reported in the relevant aquatic toxicity e.g. toxicity to invertebrates sections).

	- Description of the characteristics of the sediment: TOC content, size of the particles. If formulated, give the composition, if natural, give its origin, - Water source (natural, reconstituted) and chemistry, pH, hardness, TOC, salinity), - Test design: number of replicates and individuals per replicate, number of concentrations, concentrations of tests substance, - Method used for addition of the substance to sediment or water, if any specify the period and the conditions for equilibration, - Monitoring of concentration of test substance: "yes/no", - Give analytical method used to measure chemical in water and sediment along with the limit of detection and limit of quantification, - Exposure vessel type (e.g., size, headspace, sealed, aeration, lighting), - Method of calculating mean measured concentrations: i.e., arithmetic mean, geometric mean, etc, - Note the test temperature range (minimum-maximum) in the water (°C), the pH range (minimum-maximum) in the water, the dissolved oxygen concentration range in the water during the test, - Source, breeding method, age and selection of the organisms at study initiation, use of any control group, - Information about feeding of test organisms, source of food, possibly contamination of food.
Results	
Unit	mg/l, mg/kg d.w., mg/kg OC d.w., other
Concentration type	Note whether endpoint value is based on nominal or measured concentration
Measured concentrations	Amount of chemical in sediment (mg/kg) and in water (mg/l) (distinguish between pore water and overlying water) measured in the test system that would represent the mean measured concentrations for the test
Precision	<, >, =, ≤, ≥ or ca. (circa)
Endpoint Type	NOEC, NOELR, LOEC, LOELR, LC50, LL50, ECxx, ELxx

Endpoint Value	Concentration associated with the endpoint type. If appropriate, results can be reported in table format for different effects measured in the test (e.g. table below)
Results Remarks	- List all measured data and provide the N, mean, standard deviation and range for all concentrations over the course of the test, - Discuss the stability of the test substance over the test duration, - Cite statistical methods used, p values, 95% confidence limits and appropriate reference(s), - Biological observations: mortality, organisms not recovered at the end of the test, development, growth, number of egg mass or young produced, any behaviour or physiological effects, - Note control performances and if validity criteria are met, - If used, note the results with a reference substance.
Conclusion	Note the study's author's conclusions and whether the submitter agrees
Reliability	
Reliability code	Note the reliability of the study (for example "Klimisch" code)
Reliability Remarks	Present rationale for the reliability code
Reference	Present full citation of the study summarised
General Remarks	Use for any other comments necessary for clarification

Results table

Endpoint: e.g. mortality, sublethal effects, growth, emergence, development, reproduction.					
Nominal concentration (unit)	Measured concentration (unit)	7d	14d	21d	28d
Conc. 1					
Conc. 2					
Conc. 3					
…					

4.7 Biological Effects Monitoring (including Biomagnification)

This is not a SIDS element. Available data should be reported in this section. Studies on variation of predominant species in certain ecosystems (e.g. mesocosm) and monitoring of biological effects should be included here.

There is no Robust Study Summary template for Biological Effects Monitoring (Including Biomagnification), however the minimum information to be reported is outlined below.

Test Substance

Identity (purity) :

Remarks: *(Use for any pertinent, test substance-specific remarks.)*

Method

Species or ecosystem studied:
Effects monitored:

Test Conditions: *(Detail and discuss any significant protocol deviations.)*

Results

Chemical analysis:

Remarks: *(Information on environmental conditions (e.g. water characteristics: suspended matter, pH, temperature, hardness; soil/sediment characteristics: % organic matter, clay content)*

Reliability

(Data reliability code, e.g. Klimisch code, if used, possibly a flag for 'key study')

Remarks: *(The rationale for the reliability code should be described clearly as should the process by which the "Reliability" decision was made).*

Reference