Justification Document for the Selection of a CoRAP Substance

Substance Name (public name):	RESORCINOL
EC Number:	203-585-2
CAS Number:	108-46-3
Authority:	FRANCE
Date:	19/03/2019

Cover Note

This document has been prepared by the evaluating Member State given in the CoRAP update.

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1 IDENTITY OF THE SUBSTANCE

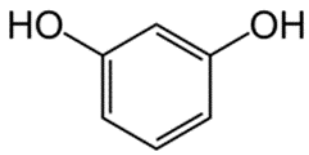
1.1 Other identifiers of the substance

Table: Other Substance identifiers

EC name (public):	Resorcinol
IUPAC name (public):	Benzene-1,3-diol
Index number in Annex VI of the CLP Regulation:	604-010-00-1
Molecular formula:	$C_6H_6O_2$
Molecular weight or molecular weight range:	110,1
Synonyms:	1,3-dihydroxybenzene; 1,3-Benzoldiol; Resorcin; 3-Hydroxyphenol; C.I. 76505; C.I. Developer 4; C.I. Oxidation Base 31; Developer O; Developer RS; dihydroxybenzol; Durafur Developer G; Fouramine RS; Fourrine 79; Jarocol RL; RES;

Type of substance ☒ Mono-constituent ☐ Multi-constituent ☐ UVCB

Structural formula:



1.2 Similar substances/grouping possibilities

No structurally similar substances identified at this point.

2 OVERVIEW OF OTHER PROCESSES / EU LEGISLATION

Table: Completed or ongoing processes

RMOA	☒ Risk Management Option Analysis (RMOA)	
REACH Processes	Evaluation	☐ Compliance check, Final decision
		☐ Testing proposal
		☒ CoRAP and Substance Evaluation
	Authorisation	☐ Candidate List
		☐ Annex XIV
	Restric -tion	☐ Annex XVII[1]
Harmonised C&L	☒ Annex VI (CLP) (see section 3.1)	
Processes under other EU legislation	☐ Plant Protection Products Regulation Regulation (EC) No 1107/2009	
	☐ Biocidal Product Regulation Regulation (EU) 528/2012 and amendments	
Previous legislation	☐ Dangerous substances Directive Directive 67/548/EEC (NONS)	
	☐ Existing Substances Regulation Regulation 793/93/EEC (RAR/RRS)	
(UNEP) Stockholm convention (POPs Protocol)	☐ Assessment	
	☐ In relevant Annex	
Other processes / EU legislation	☐ Other (provide further details below)	

[1] Please specify the relevant entry.

Further details	Resorcinol was included in the CoRAP in 2016 and the Finnish MSCA in charge of the evaluation produced a Conclusion document on 24 October 2017[2]. No further tests were required.

3 HAZARD INFORMATION (INCLUDING CLASSIFICATION)

3.1 Classification

3.1.1 Harmonised Classification in Annex VI of the CLP

Table: Harmonised classification

Index No	International Chemical Identification	EC No	CAS No	Classification		Spec. Conc. Limits, M-factors	Notes
				Hazard Class and Category Code(s)	Hazard statement code(s)		
604-010-00-1	resorcinol (1,3-benzenediol)	203-585-2	108-46-3	Acute Tox. 4* Skin Irrit. 2 Eye Irrit. 2 Aquatic Acute 1	H302 H315 H319 H400		

*Minimum classification

3.1.2 Self classification

- In the registration, the following classification is applied (deviations and addition to harmonised classification in bold):

  Acute Tox. 4 - H302
  Skin Irrit. 2 – H315
  Eye Dam 1 – H318
  Skin Sens 1B – H317
  STOT SE 1 – H370
  STOT SE 2 – H371
  Aquatic Acute 1, C ≥ 25%
  Aquatic Chronic 3 – H412

- The following hazard classes are in addition notified among the aggregated self classifications in the C&L Inventory:

  Acute Tox 4 – H312
  Eye Irrit 2A – H319
  Flam Sol. 2 – H228
  Skin Sens 1 – H317
  STOT RE 1 – H372

[2] https://echa.europa.eu/documents/10162/fedfa3b0-f8a2-66b4-2a08-7f686df46994

3.1.3 Proposal for Harmonised Classification in Annex VI of the CLP

The RMOA from the Finnish Safety and Chemicals Agency (dated 7 May 2018) concluded for the need of harmonised classification and labelling as follow-up regulatory action. No proposal is in process yet.

4 INFORMATION ON (AGGREGATED) TONNAGE AND USES[3]

4.1 Tonnage and registration status

Table: Tonnage and registration status

From ECHA dissemination site *		
☒ Full registration(s) (Art. 10)	☒ Intermediate registration(s) (Art. 17 and/or 18)	
Tonnage band (as per dissemination site)		
☐ 1 – 10 tpa	☐ 10 – 100 tpa	☐ 100 – 1000 tpa
☒ 1000 – 10,000 tpa	☐ 10,000 – 100,000 tpa	☐ 100,000 – 1,000,000 tpa
☐ 1,000,000 – 10,000,000 tpa	☐ 10,000,000 – 100,000,000 tpa	☐ > 100,000,000 tpa
☐ <1 . . . . . >+ tpa (e.g. 10+ ; 100+ ; 10,000+ tpa)		☐ Confidential

*the total tonnage band has been calculated by excluding the intermediate uses, for details see the Manual for Dissemination and Confidentiality under REACH Regulation (section 2.6.11):

https://echa.europa.eu/documents/10162/22308542/manual_dissemination_en.pdf/7e0b87c2-2681-4380-8389-cd655569d9f0

4.2 Overview of uses

Table: Uses

Part 1:

☐ Manufacture	☒ Formulation	☒ Industrial use	☒ Professional use	☒ Consumer use	☐ Article service life	☐ Closed system

Part 2:

	Use(s)
Uses as intermediate	Manufacture of UV Stabilisers Manufacture of Flame Retardants Manufacture of Agricultural Chemicals

[3] *Dissemination site accessed on 08/10/2018.*

	Manufacture of Industrial Dyes
Formulation	Use in manufacture of rubber compounds – tires Use in manufacture of rubber compounds - other rubber compounds Dipping - Use in manufacture of rubber compounds Manufacture of PRF Resins Use of Phenol Resorcinol Formaldehyde resin as a wood adhesive Hair dye formulation Manufacture of other resins Manufacture of cosmetic product Use in coatings Processing of resins Formulation and (re) packing of preparations
Uses at industrial sites	Use in manufacturing rubber compounds – tires Use in manufacture of rubber compounds - other rubber products Dipping - Use in manufacture of rubber compounds Manufacture of PRF Resins Manufacture of RF resins Use of Phenol Resorcinol Formaldehyde resin as a wood adhesive Use in coatings Use in other adhesives and sealants Processing of Resins Manufacture of other resins
Uses by professional workers	Use in Scientific Research and Development Use of cosmetics in hairdressing services
Consumer Uses	Use of Hair Dyes End use of cosmetic products
Article service life	Not relevant
Uses adviced against	Use by professional workers: skin peels Consumer use: skin peels

5. JUSTIFICATION FOR THE SELECTION OF THE CANDIDATE CoRAP SUBSTANCE

5.1. Legal basis for the proposal

☐ Article 44(2) (refined prioritisation criteria for substance evaluation)

☒ Article 45(5) (Member State priority)

Since there was no decision requesting tests during the previous evaluation, this request complies with Article 47 (1) of REACH. See paragraph 5.6 for further details on the justification of the national priority and change of circumstances that leads to inclusion to CoRAP.

5.2. Selection criteria met (why the substance qualifies for being in CoRAP)

☐ Fulfils criteria as CMR/ Suspected CMR

☐ Fulfils criteria as Sensitiser/ Suspected sensitiser

☒ Fulfils criteria as potential endocrine disrupter

☐ Fulfils criteria as PBT/vPvB / Suspected PBT/vPvB

☐ Fulfils criteria high (aggregated) tonnage (*tpa > 1000*)

☐ Fulfils exposure criteria

☒ Fulfils MS's (national) priorities

5.3. Initial grounds for concern to be clarified under Substance Evaluation

Hazard based concerns		
CMR ☐ C ☐ M ☐ R	Suspected CMR[1] ☐ C ☐ M ☐ R	☒ Potential endocrine disruptor
☐ Sensitiser	☐ Suspected Sensitiser[4]	
☐ PBT/vPvB	☐ Suspected PBT/vPvB[1]	☐ Other (please specify below)
Exposure/risk based concerns		
☐ Wide dispersive use	☐ Consumer use	☐ Exposure of sensitive populations
☐ Exposure of environment	☐ Exposure of workers	☐ Cumulative exposure
☐ High RCR	☒ High (aggregated) tonnage	☐ Other (please specify below)

[4] CMR/Sensitiser: known carcinogenic and/or mutagenic and/or reprotoxic properties/known sensitising properties (according to CLP harmonized or registrant self-classification or CLP Inventory)
Suspected CMR/Suspected sensitiser: suspected carcinogenic and/or mutagenic and/or reprotoxic properties/suspected sensitising properties (not classified according to CLP harmonized or registrant self-

A thyroid disrupting mode of action of resorcinol is supported by human data and by *in vitro* studies reporting thyroid peroxidase (TPO) inhibition. Due to conservation of hormonal regulation, resorcinol is likely to interact with thyroid systems of any species of the environment. In addition, TPO inhibition was seen in a screening level test with fish embryos. However, no apical endpoints straight related to thyroid disruption have been tested in the environmental assays. Therefore according to the ECHA/EFSA guidance for identification of ED[5], the T-mediated adversity with regard to other non-target organisms are considered as not sufficiently investigated to reach a conclusion for environmental species.
The available database therefore raises concern that resorcinol may be an endocrine disruptor for the environment but data investigating adverse apical effects on environmental species are missing.

Resorcinol is produced at a high tonnage and has wide dispersive uses such as uses in cosmetics. It may result in a significant exposure of the environment, potentially above the level that can be found naturally in the environment. There is no data available to ensure that use-related additive levels are without consequences to the environment.

5.4. Preliminary indication of information that may need to be requested to clarify the concern

☐ Information on toxicological properties	☐ Information on physico-chemical properties
☐ Information on fate and behaviour	☐ Information on exposure
☐ Information on ecotoxicological properties	☐ Information on uses
☒ Information ED potential	☐ Other (provide further details below)
A test to investigate the ED potential of resorcinol for the environment with inclusion of adverse apical parameters may be requested.	

5.5. Potential follow-up and link to risk management

☐ Harmonised C&L	☐ Restriction	☒ Authorisation	☐ Other (provide further details)

classification)
Suspected PBT: Potentially Persistent, Bioaccumulative and Toxic

[5] ECHA (European Chemicals Agency) and EFSA (European Food Safety Authority) with the technical support of the Joint Research Centre (JRC), Andersson N, Arena M, Auteri D, Barmaz S, Grignard E, Kienzler A, Lepper P, Lostia AM, Munn S, Parra Morte JM, Pellizzato F, Tarazona J, Terron A and Van der Linden S, 2018. Guidance for the identification of endocrine disruptors in the context of Regulations (EU) No 528/2012 and (EC) No 1107/2009. EFSA Journal 2018;16(6):5311, 135 pp. https://doi.org/10.2903/j.efsa.2018.5311 . ECHA-18-G-01-EN

The identification that resorcinol can produce adverse effects mediated by endocrine disruption on species relevant for the environment may lead to the identification of resorcinol as an SVHC according to article 57(f) – Equivalent level of concern - for the environment. Identification of resorcinol as an SVHC due to ED-properties relevant for the environment would allow all uses of resorcinol to be in the scope of uses impacted by a possible annex XIV inclusion.

5.6. Justification that a new evaluation is needed

FR MSCA notes that the concern that resorcinol may be an endocrine disruptor has been investigated by the Finnish MSCA during a previous SEv in 2016.
However, no decision for further testing was issued under this evaluation procedure (Substance Evaluation Conclusion Document, dated 24 October 2017[6]). As no decision was taken, the conclusion of the Finnish MSCA therefore represents its own views at a specific point in time.

Finnish MSCA considered that "the added value [of information requirement] could be the proof of adverse apical effects resulting from thyroid disrupting activity" but that no new information "would significantly change or improve the conclusion on thyroid disrupting properties of resorcinol, due to the lack of apical endpoints in the test methods that would indicate clear (population level) adversity mediated by the HPT axis".

This conclusion was further discussed by the Finnish MSCA in a Risk Management Option Analysis (dated 7 May 2018[7]) that concluded that SVHC identification was not necessary as "The current evidence on the intrinsic hazard properties and other environmental properties of resorcinol were not considered sufficient to conclude that the thyroid effects would give rise to an equivalent level of concern in the environment as compared to those of other substances listed in paragraphs (a) to (e) of Article 57."

FR MSCA however considers the following changes of circumstances:

- The OECD conceptual framework has been recently updated and lists an assay of level 4 relevant for the investigation of thyroid disruption in non-mammalian toxicology, i.e. LAGDA (OCDE 241). Level 4 assays of the OECD conceptual framework are defined as *in vivo* assays providing data on adverse effects on endocrine-relevant endpoints[8]. The recent ECHA/EFSA

[6] https://echa.europa.eu/documents/10162/fedfa3b0-f8a2-66b4-2a08-7f686df46994

[7] https://echa.europa.eu/documents/10162/af20d0cd-aa45-5cb7-4fe8-9fdf38f3cf15

[8] OECD (2018), Revised Guidance Document 150 on Standardised Test Guidelines for Evaluating Chemicals for Endocrine Disruption, OECD Series on Testing and Assessment, OECD Publishing, Paris. https://doi.org/10.1787/9789264304741-en

guidance for identification of ED[9] also mentions that LAGDA includes thyroid-mediated parameters. Endpoints evaluated during the course of this study include those indicative of general toxicity: mortality, abnormal behaviour, and growth determinations (length and weight), as well as endpoints designed to characterise specific endocrine toxicity modes of action targeting thyroid-mediated physiological processes, as well as oestrogen and androgen processes. In OECD (2018) it is stated regarding LAGDA that "*Probably the only true apical endpoints which could be used for hazard identification/characterisation (because they can be related directly to adverse effects on populations) are mortality, growth and phenotypic/genotypic sex ratio. The latter two are likely to be responsive to some EDs, but growth may also respond to certain other chemicals. On the other hand, indicators of hormonal activity of use in diagnosing the effects of EDs include gonad and thyroid histopathology, liver-somatic index, time to metamorphosis, and vitellogenin (VTG). Time to metamorphosis can also arguably be considered as an apical endpoint with potential implications at the population level.*" Therefore iIn line with the recent ECHA/EFSA guidance, further testing (e.g., LAGDA) may provide sufficient information to conclude whether resorcinol is an ED substance relevant for the environment according to the WHO definition. The most appropriate tests to further investigate endocrine disruptive effects of resorcinol for the environment, if necessary, will be discussed and determined during the SEv process.

- If it is demonstrated that resorcinol is an ED for the environment according to the WHO definition, FR MSCA considers that it is not possible to exclude that resorcinol may represent an equivalent level of concern relevant for its identification as an SVHC according to art. 57(f). In particular, ED-mediated effects of a substance raise substantial uncertainties related to the possibility to establish safe thresholds and to fully characterise the scope of effects, which points toward a high level of concern, regardless the environmental fate properties of the substance. Identification of resorcinol as an SVHC under art. 57(f) would therefore require further considerations.

As a follow-up to the issues raised by Finnish evaluation, FR MSCA has therefore identified a concern on endocrine properties of resorcinol for environment that needs to be clarified. Evaluation and regulation of endocrine disruptors and suspected endocrine disruptors is a priority for the French Authorities and is one of the main objective of a ED-dedicated national plan (National Strategy for Endocrine Disruptor). With regards to the circumstances described above as well as to its high tonnage and its wide dispersive uses, resorcinol has been included in 2018 into the French National Strategy for Endocrine Disruptor and its evaluation and regulation if relevant are considered a national priority for FR MSCA.

On this basis, FR MSCA consider that it is justified to conduct a new substance evaluation of resorcinol.

[9] ECHA (European Chemicals Agency) and EFSA (European Food Safety Authority) with the technical support of the Joint Research Centre (JRC), Andersson N, Arena M, Auteri D, Barmaz S, Grignard E, Kienzler A, Lepper P, Lostia AM, Munn S, Parra Morte JM, Pellizzato F, Tarazona J, Terron A and Van der Linden S, 2018. Guidance for the identification of endocrine disruptors in the context of Regulations (EU) No 528/2012 and (EC) No 1107/2009. EFSA Journal 2018;16(6):5311, 135 pp. https://doi.org/10.2903/j.efsa.2018.5311 . ECHA-18-G-01-EN