

Legislative Mapping Benzophenones

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Summary Document

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1 Introduction

This document provides a summary of the legislative status of the benzophenones within the HBM4EU Priority Substance Group. The mapping considers the relevant pieces of legislation under the European Chemicals legislative framework and International Conventions on chemical risk in order to provide an overview of relevant requirements for placing on the market, use and handling.

This document provides a tabulated summary of relevant legislation grouped by legislative area. It is to be used as an indication of those pieces of legislation which are applicable to the substances within this group. In order to provide more detailed information in an easier to read format, this document is supported by an excel database.

1.1 How to use the excel database

The Excel database provides detailed information, with links where appropriate, on the specific Article, Annex or Appendix which is applicable to the substance concerned. Substance identification information is provided for all substances including name, CAS number, EC number, HBM4EU category, and whether the substance is considered of high or medium priority by the HBM4EU Chemical Group Leads. All pieces of legislation are linked to the legal text on Eur-Lex. The database contains fourteen tabs which relate to groups of legislation or processes. The tabs are as follows:

- Table 1 – Links to information pages for each substance. This provides links to the Substance Information Pages, Brief Profiles (where applicable), and the CLI inventory on the ECHA website.
- Public consultations – summary of the status on public consultations for relevant regulatory processes. Includes Restriction intentions and SVHC intentions under REACH, CLH intentions, OELs.
- Table 2 – Legislative map. An overview of the applicable individual pieces of legislation. Where a piece of legislation is applicable to an individual substance it is marked by a Y (indicating yes). At the top of each section there is a link, which when clicked on will take you to the more detailed table found in subsequent tabs.
- Table 3 – POPs Regulation and PIC Regulation. Status and explicit provision.
- Table 4 – REACH Restriction process. Outlines specific entry within Annex XVII and the status of a Restriction intention.
- Table 5 – REACH SVHC/ Authorisation process. Outlines the specific entry in Annex XIV, whether a substance appears on the Candidate List and the status of an SVHC intention.
- Table 6 – REACH Evaluation process. Outlines the status on the PACT List and the CoRAP.
- Table 7 – CLP Harmonised Classification process. Current harmonised classification and the status of submitted CLH intentions.
- Table 8 – REACH Registration and Biocides. Outlines the Registered uses under REACH and the current status under the Biocidal Products Regulation.
- Table 9 – OELs on CAD/CMD. Status of OEL activity list status.
- Table 10 – other limit values. This provides the DNEL list of the DGUV, limit values under the Drinking Water Directive, Environmental Quality Standards, Groundwater limit values.
- Table 11 – Professional and Consumer legislation. Identifies the specific Article or Annex which is applicable to certain substances.
- Table 12 – OSH and Waste legislation. Specific Articles or Annexes applicable to certain substances.
- Table 13 – Environmental legislation. Specific Articles or Annexes applicable to certain substances.

1.2 Outline of this Summary Document

The summary information on legislative status presented in the Summary Document has been split by legislative group.

- Section 2 – International Conventions and Implementing EU Legislation.
- Section 3 – Cross Regulation Activities
- Section 4 – REACH Regulation
- Section 5 – CLP Regulation
- Section 6 – OSH Legislation
- Section 7 – Professional and Consumer Legislation
- Section 8 – Waste Legislation
- Section 9 – Environmental Legislation

As mentioned in the introduction, the information is tabulated and presents a tick-box style matrix, where a “Y” indicates the legislation is of relevance to the substance. Brief summaries are provided of the purpose of the relevant legislation. The tables indicate the substance identification information (name, CAS number) and indicates the HBM4EU category. Substances deemed of high importance to the HBM4EU Chemical Group Leads are highlighted in green and those of medium importance are highlighted in yellow. The categorisation of substances under HBM4EU is:

- Category A – substances for which HBM4EU data are sufficient to provide an overall picture of exposure levels across Europe, and interpretation of biomonitoring results in terms of health risks is possible. Improvement of knowledge for these substances will therefore focus on policy-related research questions and evaluation of the effectiveness of existing regulatory measures.
- Category B – substances for which HBM data exists, but not sufficiently to have a clear picture across Europe. Also, knowledge on the extend of exposure, levels and impact on the human health should be improved, in order to give policy makers relevant and strategic data to establish appropriate regulations and improve chemical risk management. Analytical method and capacities to monitor the substances across Europe might have to be improved.
- Category C – substances are substances for which HBM data scarcely or doesn't exists. Efforts to develop an analytical method to obtain relevant HBM results need to be done Hazardous properties of the substances are identified, yet greater knowledge on toxicological characteristics and effects on the human health is needed. Interpretation of HBM data is not possible, due to the lack of HBM guidance values.
- Category D – substances are substances for which a toxicological concern exists but HBM data are not available. HBM4EU research may be focused on the development of suspect screening approaches permitting to generate a first level of data enabling to document the reality of human exposure and better justify further investment in a full quantitative and validated method development.
- Category E – substances are substances not yet identified as of toxicological concern and for which no HBM data are available. A bottom-up strategy will be applied, consisting to non-targeted screening approaches coupled to identification of unknowns capabilities for revealing, and further identifying, new (i.e. not yet known) markers of exposure related to chemicals of concern for HBM (parent compound or metabolite).¹

¹ HBM4EU (no date) Categorisation of Substances. Available at: <https://www.hbm4eu.eu/categorisation-of-substances/> [Accessed 28/10/2019]

2 Summary of benzophenones legislation

The below table summarises the legislation that regulates bisphenols.

Table 2-1: Simplified Summary Benzophenones – UV Filters										
Substance Name	CAS No.	REACH	CLP	PACT	CoRAP	CAD	Cosmetic Products Regulation	Plastic Food Contact Materials Regulation	Recycled Plastic Food Contact Materials Regulation	Waste Framework Directive
BP-3 (benzophenone-3)	131-57-7	Y		Y	Y	Y	Y	Y	Y	Y
BP (benzophenone)	119-61-9	Y	Y	Y	Y	Y	Y	Y	Y	Y
BP-1 (benzophenone-1)	131-56-6	Y		Y			Y	Y	Y	
BP-2 (benzophenone-2)	131-55-5			Y			Y			
4-MBC (3-(4-methylbenzylidene-camphor))	36861-47-9	Y		Y			Y			
3-BC (3-benzylidene camphor)	15087-24-8	Y		Y			Y			
4-HBP (4-hydroxy-benzophenone)	1137-42-4	Y								
4-MBP (4-methyl-benzophenone)	134-84-9	Y					Y			

3 International Conventions and Implementing EU Legislation

Benzophenones are not subject to International Conventions and Implementing EU Legislation.

4 Cross Regulation Activities

4.1 PACT List

The Public Activities Coordination Tool (PACT) provides an overview of the substance-specific activities being undertaken by authorities under the REACH Regulation and the CLP Regulation. The activities under the PACT List are carried out in line with ECHA's Integrated Regulatory Strategy.

The PACT List provides up-to-date information on ECHA's and/or Member State Competent Authority's (MSCA) planned, ongoing or completed activities for a given substance in the following areas:

- Data generation and assessment – dossier evaluation, substance evaluation, informal hazard assessment (PBT/vPvB/ED);
- Regulatory Management Option Analysis (RMOA); and
- Regulatory risk management – harmonised classification and labelling (CLH), SVHC identification, restriction.²

4.2 CoRAP

The Community Rolling Action Plan (CoRAP) identifies the substances which shall be evaluated by Member States in the next three years and it is updated annually in March. Substance evaluation aims to clarify the initial concern that the manufacture and/or use of the substances could pose a risk to human health or the environment. These initial concerns tend to relate to potential persistency, bioaccumulation, toxicity (PBT), endocrine disruption, carcinogenicity, mutagenicity or reprotoxicity (CMR), in combination with wide dispersive use or consumer use of the substance.

Member States may focus their evaluation on the area of initial concern, but this does not have to be limit of the scope of the evaluation. Following evaluation, if additional data is required to clarify a suspected risk then further information may be requested from registrants of the substance, or it may be concluded that the substance does not constitute a risk and no further data is required.

Table 4-1 below indicates how benzophenones are regulated under cross regulation activities.

Cat.	Substance Name	CAS No.	PACT List	CoRAP
B	BP-3 (benzophenone-3)	131-57-7	Y	Y
C	BP (benzopenone)	119-61-9	Y	Y
C	BP-1 (benzophenone-1)	131-56-6	Y	
C	BP- 2 (benzophenone-2)	131-55-5	Y	
C	4-MBC (3-(4-methylbenzylidene-camphor))	36861-47-9	Y	
C	3-BC (3-benzylidene camphor)	15087-24-8	Y	

² ECHA (no date) Public activities coordination tool. Available at: <https://echa.europa.eu/pact> [Accessed: 28/10/2019]

5 REACH Regulation

5.1 REACH Regulation

Legislative Act: [Regulation \(EC\) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals \(REACH\), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation \(EEC\) No 793/93 and Commission Regulation \(EC\) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC](#)

Staged over three phases, the 2008 REACH Regulation requires manufacturers and importers (MIs) of chemicals to register all chemical substances manufactured or imported and used in quantities of >1t per year per MI. All substances manufactured or imported in quantities of >100 t per year per MI and all known CMRs 1A/1B/PBT/vPvB over 1t per MI per year have completed registration. The final REACH Registration deadline was 1 June 2018 for substances manufactured or imported in quantities of 1-100 tonnes per MI per year.

Through ‘Restriction and Authorisation’ the REACH regulation has provisions to ensure that the risks from substances of very high concern (SVHC) are controlled and substances are progressively replaced by suitable alternative substances or technologies.

For all substances, information must be generated, and classifications made according to CLP. Even where Restriction/Authorisation provisions are not applied, hazard classifications can trigger parallel community legislation and information must be passed to downstream users using safety data sheets. Substances manufactured or imported at >10t per year per MI must also conduct a chemical safety assessment for all identified uses, where this must demonstrate adequate control of any identified risks.

Tables 5-1 below and 5-2 overleaf indicate how benzophenones are registered under REACH and their uses.

Cat.	Substance Name	CAS No.	FULL REACH Registration	Intermediate REACH Registration	NONS REACH Registration	Information on REACH registered uses
B	BP-3 (benzophenone-3)	131-57-7	Y			Y
C	BP (benzophenone)	119-61-9	Y	Y		Y
C	BP-1 (benzophenone-1)	131-56-6	Y			Y
C	4-MBC (3-(4-methylbenzylidene-camphor))	36861-47-9	Y			Y
C	4-HBP (4-hydroxy-benzophenone)	1137-42-4	Y	Y		Y
C	4-MBP (4-methyl-benzophenone)	134-84-9	Y			Y

Cat.	Substance Name	CAS No.	Consumer uses	Article service life	Widespread uses by professional workers	Formulation or re-packing	Uses at industrial sites
B	BP-3 (benzophenone-3)	131-57-7	Y	Y	Y	Y	Y
C	BP (benzopenone)	119-61-9	Y	Y	Y	Y	Y
C	BP-1 (benzophenone-1)	131-56-6	Y	Y		Y	Y
C	4-MBC (3-(4-methylbenzylidene-camphor))	36861-47-9	Y			Y	
C	4-HBP (4-hydroxy-benzophenone)	1137-42-4					Y
C	4-MBP (4-methyl-benzophenone)	134-84-9	Y		Y	Y	Y

5.1.1 Authorisation of Substances of Very High Concern (SVHC) under REACH

The REACH regulation has provisions to ensure that the risks from substances of very high concern (SVHC) are controlled and substances are progressively replaced by suitable alternative substances or technologies.

SVHCs under REACH are:

- Substances meeting the criteria for classification as carcinogenic, mutagenic or toxic for reproduction (CMR) category 1A or 1B in accordance with CLP (Regulation (EC) No 1272/2008);
- Substances which are persistent, bio-accumulative and toxic (PBT) or very persistent and very bio-accumulative (vPvB) in accordance with the criteria set out in Annex XIII of the REACH Regulation; and
- Substances giving rise to an equivalent level of concern where these substances may have endocrine disrupting (ED) properties or have properties, that although not meeting the above criteria, there is scientific evidence of probable serious effects to human health or the environment

SVHCs may be added to:

- **the Authorisation List (Annex XIV of REACH)** along with recommendations on, amongst other things:
 - Sunset Date from which the placing on the market and the use of a substance is prohibited, unless an authorisation is granted, or the use is exempt from authorisation;
 - Latest application date by which applications must be received if the applicant wishes to continue the placing on the market or use of the substance after the sunset date;
 - Review periods for certain uses, if any; and
 - Uses exempted from the authorisation requirement, if any.

An application for authorisation is granted only if the applicant can demonstrate that the risk from the use of the substance is adequately controlled or when it is proven that the socio-

economic benefits of using the substance outweigh the risks and there are no suitable alternative substances or technologies.

Producers and importers of substances which are candidates for the above must notify ECHA if a substance is present in their articles above a concentration of 0.1% weight by weight and if the total volume of the substance in articles is over one tonne per year. These notifications are called Substances in Articles (SIA) notifications.

Table 5-3 below indicates how benzophenones are authorised under REACH.

Table 5-3: REACH Authorisation					
Cat.	Substance Name	CAS No.	Authorisation list (annex XIV)	Candidate List	Registry of SVHC Intentions
C	4-MBC (3-(4-methylbenzylidene-camphor))	36861-47-9			Y
C	3-BC (3-benzylidene camphor)	15087-24-8	Y	Y	Y

6 CLP Regulation

6.1 CLP Regulation

Legislative Act: [Regulation \(EC\) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation \(EC\) No 1907/2006](#)

The CLP Regulation harmonises the criteria for classification of substances and mixtures, and the rules for labelling and packaging of these hazardous substances and mixtures. It outlines the obligations of:

- Manufacturers, importers and downstream users to classify substances and mixtures before they can be placed on the market;
- Suppliers to label and package substances and mixtures before placing on the market; and
- Manufacturers, producers of articles and importers to classify those substances not placed on the market that are registered or notified under REACH.

There are two types of classification under CLP. Harmonised classification (CLH) is the classification of a substance that has been agreed by independent experts at European level, and this classification is then legally binding. Harmonised classifications are listed in Annex VI of CLP. Mixtures are not subject to harmonised classification. Self-classification is carried out by a supplier who classifies the chemicals directly, where no harmonised classification exists. This is also necessary for mixtures.

The classification of a substance can have impacts on vertical legislative requirements, for example cut-off criteria under PPPR and BPR for substances that have a harmonised classification for CMR 1A or 1B. OSH legislation tends to apply to both self-classified substances and those with a harmonised classification.

Table 6-1 below indicates how benzophenones are regulated under CLP legislation.

Table 6-1: Harmonised Classification				
Cat.	Substance Name	CAS No.	Harmonised Classifications in force from 1 May 2020 after ATP 13	Registry of submitted CLH
C	BP (benzopenone)	119-61-9		Y

7 OSH Legislation

7.1 Chemical Agents Directive (CAD)

Legislative Act: [Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work](#)

This Directive is the fourteenth individual Directive within the meaning of Article 16 of the OSH Framework Directive. It outlines the minimum requirements for the protection of workers health and safety arising, or likely to arise, from the effects of chemical agents in the workplace or the use of chemical agents at work. It applies where hazardous chemical agents are present or may be present at the workplace. Indicative occupational exposure limit values (IOELVs) are set at Community level. Member States are required to introduce a national occupational exposure limit value that takes into account the IOELV. Binding biological limit values (BBLVs) may be drawn up at Community level. Member States must establish a corresponding national binding biological limit value. There are a number of obligations for employers, including carrying out an assessment of the risk to health and safety arising from the presence of chemical agents and specific protection and prevention measures. The definition of a hazardous chemical agent is where it meets the criteria for classification under the Dangerous Substances Directive (67/548/EEC) or the Dangerous Preparations Directive (88/379/EEC). These classifications have been translated into CLP.

Table 7-1 below indicates how benzophenones are regulated under OSH legislation.

Table 7-1: Applicable OSH Legislation			
Cat.	Substance Name	CAS No.	CAD
B	BP-3 (benzophenone-3)	131-57-7	Y
C	BP (benzopenone)	119-61-9	Y

8 Professional and Consumer Legislation

8.1 Cosmetic Products Regulation

Legislative Act: [Regulation \(EC\) No 1223/2009 on cosmetic products \(formerly 76/768/EEC\)](#)

This Regulation lays out the rules that cosmetic products must comply with if they are to be made available on the market. The Cosmetic Products Regulation does not have to comply with the requirements of CLP, packaging and labelling requirements are instead outlined in the Cosmetic Products Regulation. Article 15 is the only area that has a link to CLP. This outlines the prohibition of CMRs in cosmetic products. Annex II lists the substances that are prohibited for use in cosmetics, these are not necessarily CMRs.

8.2 Food Contact Materials Regulations

Legislative Acts:

- Framework Regulation - [Regulation \(EC\) No 1935/2004 of the European Parliament and of the Council of 27 October 2004 on materials and articles intended to come into contact with food and repealing Directives 80/590/EEC and 89/109/EEC](#)
- [Commission Regulation \(EU\) No 10/2011 of 14 January 2011 on plastic materials and articles intended to come into contact with food](#)
- [Commission Regulation \(EC\) No 282/2008 of 27 March 2008 on recycled plastic materials and articles intended to come into contact with foods and amending Regulation \(EC\) No 2023/2006](#)

This Regulation is a specific measure within the meaning of Article 5 of Regulation (EC) No 1935/2004. This Regulation establishes specific requirements for the manufacture and marketing of plastic materials and articles that are intended to come into contact with food, already in contact with food, or which can be reasonably expected to come into contact with food. It includes materials and articles that are made exclusively of plastic, of plastic multi-layer materials and articles held together by adhesives, those that are printed or covered by a coating, plastic layers or plastic coatings which form gaskets in caps and closures that together with the caps and closures are made of two or more layers of different types of materials, and plastic multi-material multi-layer materials and articles.

Only substances that are included in the Union list of authorised substances set out in Annex I can be used in the manufacture of plastic layers in plastic materials and articles, although derogations do exist. Each substance must not exceed its specific migration limit. Substances that are not listed in the Union list or the provisional list but have been approved for use cannot have a harmonised classification as CMR or be in nanoform.

Plastic Food Contact Materials:

This regulation establishes the specific rules for plastic materials and articles to be applied for their safe use. It also repeals Directive 2002/72/EC on plastic materials and articles intended to come into contact with foodstuffs.

Recycled Plastic Food Contact Materials:

This regulation shall apply to the plastic materials and articles and parts thereof intended to come into contact with foodstuffs which contain recycled plastic. It requires food contact material operators planning to introduce a plastics recycling process shall seek authorisation from the EU Commission. The products manufactured by these operators must meet the requirements of Regulations 10/2011 on plastics.

Table 8-1 below indicates how benzophenones are regulated under professional and consumer legislation.

Table 8-1: Applicable Professional and Consumer Legislation					
Cat.	Substance Name	CAS No.	Cosmetic Products	Plastic Food Contact Materials	Recycled Plastic Food Contact Materials
B	BP-3 (benzophenone-3)	131-57-7	Y	Y	Y
C	BP (benzopenone)	119-61-9	Y	Y	Y
C	BP-1 (benzophenone-1)	131-56-6	Y	Y	Y
C	BP- 2 (benzophenone-2)	131-55-5	Y		
C	4-MBC (3-(4-methylbenzylidene-camphor))	36861-47-9	Y		
C	3-BC (3-benzylidene camphor)	15087-24-8	Y		
C	4-MBP (4-methyl-benzophenone)	134-84-9	Y		

9 Waste Legislation

9.1 Waste Framework Directive

Legislative Acts:

- [Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives](#)
- [Directive \(EU\) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste](#)

This framework Directive lays down the measures to prevent or reduce the adverse impacts of the generation and management of waste by reducing resource use and improving efficiency of use. There are certain wastes excluded from the requirements of this Directive, such as radioactive waste. These are outlined in Article 2. The Waste Framework Directive presents a waste hierarchy which applies as a priority order in waste prevention and management legislation and policy. Requirements of this Directive are outlined for prevention of waste, recovery, reuse and recycling, and disposal. The properties of waste which render it hazardous are outlined in Annex III.

Table 9-1 below indicates how benzophenones are regulated under waste legislation.

Cat.	Substance Name	CAS No.	Waste Framework Directive
B	BP-3 (benzophenone-3)	131-57-7	Y
C	BP (benzopenone)	119-61-9	Y

10 Environmental Legislation

Benzophenones are not subject to environmental legislation.



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