

Annex 15 report

Proposal for identification of a substance of very high concern (SVHC) under UK REACH

Substance Name: 2-(4-tert-Butylbenzyl)propionaldehyde and its individual stereoisomers

EC Number(s): -

CAS Number(s): -

March 2026

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1. Proposal

Substance name(s): 2-(4-tert-Butylbenzyl)propionaldehyde and its individual stereoisomers

EC number(s): -

CAS number(s): -

2-(4-tert-Butylbenzyl)propionaldehyde (EC 201-289-8, CAS 80-54-6) is manufactured as a racemic mixture (1:1) of the two enantiomers (2S)-3-(4-tert-butylphenyl)-2-methyl-propanal (CAS 75166-30-2) and (2R)-3-(4-tert-butylphenyl)-2-methyl-propanal (CAS 75166-31-3).

The substances are proposed to be identified as substances meeting the criteria of Article 57 (c) of UK REACH owing to the classification of 2-(4-tert-Butylbenzyl)propionaldehyde in the hazard class toxic for reproduction category 1B¹.

Summary of how the substances meet the criteria set out in Article 57 of the REACH Regulation

2-(4-tert-butylbenzyl)propionaldehyde is included in the GB Mandatory Classification and Labelling (MCL) list. It is covered by the entry with the index number 605-041-00-3 and classified in the hazard class toxic for reproduction category 1B (H360Fd; May damage fertility. Suspected of damaging the unborn child.).

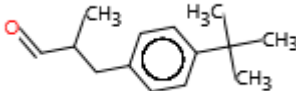
¹ Classification in accordance with section 3.7 of Annex I to the retained Regulation (EC) No 1272/2008 as amended for Great Britain (hereinafter referred to as GB CLP).

2. Justification

2.1 Identity of the substance and physical and chemical properties

2.1.1 Name and other identifiers of the substance

Table 1: Substance identity for 2-(4-tert-butylbenzyl)propionaldehyde

EC number:	201-289-8
EC name:	2-(4-tert-butylbenzyl)propionaldehyde
CAS number (in the EC inventory):	80-54-6
IUPAC name:	3-(4-tert-butylphenyl)-2-methylpropanal
Index number in GB MCL List	605-041-00-3
Molecular formula:	C ₁₄ H ₂₀ O
Molecular weight range:	204.308 g/mol
Synonyms:	Lilial Lilestralis 2-Methyl-3-(4-tert-butylphenyl)propane Lysmeral
Structural formula:	

2-(4-tert-Butylbenzyl)propionaldehyde (EC 201-289-8, CAS 80-54-6) is manufactured as a racemic mixture (1:1) of the two enantiomers (2S)-3-(4-tert-butylphenyl)-2-methyl-propanal (CAS 75166-30-2) and (2R)-3-(4-tert-butylphenyl)-2-methyl-propanal (CAS 75166-31-3).

Table 2: Substance identity for (2S)-3-(4-tert-butylphenyl)-2-methylpropanal

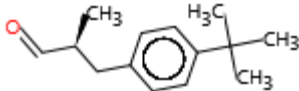
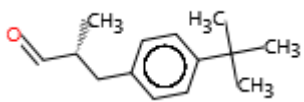
EC number:	-
EC name:	-
CAS number (in the EC inventory):	75166-30-2
CAS name:	Benzenepropanal, 4-(1,1-dimethylethyl)- α -methyl-, (α S)-
IUPAC name:	(2S)-3-(4-tert-butylphenyl)-2-methylpropanal
Index number in GB MCL List	-
Molecular formula:	C ₁₄ H ₂₀ O
Molecular weight range:	204.308 g/mol
Structural formula:	

Table 3: Substance identity for (2R)-3-(4-tert-butylphenyl)-2-methylpropanal

EC number:	-
EC name:	-
CAS number (in the EC inventory):	75166-31-3
CAS name:	Benzenepropanal, 4-(1,1-dimethylethyl)- α -methyl-, (α R)-
IUPAC name:	(2R)-3-(4-tert-butylphenyl)-2-methylpropanal

Index number in GB MCL List	-
Molecular formula:	C ₁₄ H ₂₀ O
Molecular weight range:	204.308 g/mol
Structural formula:	

Data source: EU Annex 15 report ([ECHA, 2021](#))

This report and the SVHC identification applies to both the racemate and the individual enantiomers.

2.1.2 Composition of the substance

Impurities and/or additives are not relevant for SVHC identification of the substance.

2.1.3 Identity and composition of degradation products/metabolites relevant for the SVHC assessment

Not relevant for the identification of the substance as a SVHC in accordance with Article 57 (c) of UK REACH.

2.1.4 Identity and composition of structurally related substances (used in grouping or read-across approach)

Not relevant for the identification of the substance as a SVHC in accordance with Article 57 (c) of UK REACH.

2.1.5 Physicochemical properties

Not relevant for the identification of the substance as a SVHC in accordance with Article 57 (c) of UK REACH.

2.2 Mandatory classification and labelling

Table 4: Mandatory classification in the GB MCL list

Index No	International Chemical Identification	EC No	CAS No	GB MCL list Classification		Aligned with EU CLH ^a
				Hazard Class and Category Code(s)	Hazard statement code(s)	Y/N
605-041-00-3	2-(4-tert-butylbenzyl)propionaldehyde	201-289-8	80-54-6	Repr. 1B	H360Fd	Y

^a EU CLH is harmonised classification and labelling in accordance with Regulation (EC) 1272/2008

2.3 Human health hazard assessment

Please see Section 2.2 (mandatory classification and labelling).

2.4 Conclusions on the SVHC properties

2.4.1 CMR assessment

2-(4-tert-butylbenzyl)propionaldehyde is covered by the entry with index number 605-041-00-3 in the GB MCL list and is classified in the hazard class toxic for reproduction category 1B (H360Fd; May damage fertility. Suspected of damaging the unborn child).

Therefore, the substances satisfy the criterion in Article 57 (c) of UK REACH.

3. Information on use, exposure and alternatives

3.1 UK and EU REACH registration status and tonnage

2-(4-tert-butylbenzyl)propionaldehyde (EC: 201-289-8)(CAS: 80-54-6) is registered at more than 1,000 tonnes per annum (tpa) under UK REACH. In addition, 78 Downstream User Import Notifications (DUINs²) have been submitted. There are no registrations or DUINs for the individual isomers under UK REACH.

Under EU REACH, 2-(4-tert-butylbenzyl)propionaldehyde (EC: 201-289-8) is registered with an aggregated tonnage of 1,000 – 10,000 tpa³.

3.2 General description of uses and exposure

2-(4-tert-butylbenzyl)propionaldehyde is used as a fragrance ingredient and chemical intermediate in a wide range of consumer and professional products, including cleaning agents, air care products, biocides, polishes, waxes, cosmetics, and personal care items [ECHA \(2021\)](#).

3.3 Alternatives

Based on information from [ECHA \(2021\)](#), the substance 3-(4-isobutyl-2-methylphenyl)propanal (CAS number: 1637294-12-2) has been identified as a potential substitute for 2-(4-tert-butylbenzyl)propanal.

3.4 Additional information

No additional relevant information available.

² GB-based companies who imported substances from EU-based suppliers before UK REACH became law on 1 January 2021 had no EU REACH registration obligations as they were classed as Downstream Users (DUs). As they are now importers from outside of GB, they may have registration obligations under UK REACH. However, a transitional measure allows former DUs to suspend the registration until one of three deadlines (depending on tonnage and hazard). Where the identity of these imported substances was known, they could be included in a Downstream User Import Notification (DUIN) submitted to the Agency.

³ ECHA Chemicals database; ECHA CHEM <https://chem.echa.europa.eu/>

References

ECHA (2019) Committee for Risk Assessment (RAC) Opinion proposing harmonised classification and labelling at EU level of 2-(4-tert-butylbenzyl)propionaldehyde; CLH-O-0000001412-86-259/F; Date: 28/01/2019. Available at:

<https://echa.europa.eu/documents/10162/9b07d500-5c11-4e47-9c30-57a203f9f644>

[Accessed: 10/2025]

ECHA (2021) Annex XV report: Proposal for identification of 2-(4-tert-butylbenzyl)propionaldehyde and its individual stereoisomers as substances of very high concern (SVHC) on the basis of the criteria set out in REACH Article 57. Submitted by: Sweden. Date: March 2021. Available at:

<https://echa.europa.eu/documents/10162/8b584b13-5b22-327a-8a1e-6f49dc1baa4a>

[Accessed: 10/2025].

ECHA (2024) Committee for Risk Assessment (RAC) Opinion proposing harmonised classification and labelling at EU level of 4-tert-butylbenzoic acid (TBBA); 2-(4-tert-butylbenzyl)propionaldehyde; 3-(4-tert-butylphenyl)propionaldehyde; 4-tert-butyltoluene; 4-tert-butylbenzaldehyde; and methyl 4-tert-butylbenzoate; CLH-O-0000007586-63-01/F; Date: 24/11/2024. Available at:

<https://echa.europa.eu/documents/10162/5b1048d0-3ce0-b4c3-8902-4a998dde09b0> [Accessed: 10/2025]

ECHA Chemicals database; ECHA CHEM. Available at: <https://chem.echa.europa.eu/>

[Accessed: 10/2025]

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 (Text with EEA relevance). Available at:

<https://www.legislation.gov.uk/eur/2008/1272/contents> [Accessed 09/2025].

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 (Text with EEA relevance). Available at: <https://www.legislation.gov.uk/eur/2006/1907/contents> [Accessed 09/2025]

Glossary of terms used in Agency Annex 15 report

Agency, the HSE

CLH	Harmonised Classification and Labelling
CLP	Classification, labelling and packaging
DUIN	Downstream User Import Notifications
ECHA	European Chemicals Agency
EU	European Union
HSE	Health and Safety Executive
MCL	Mandatory Classification and Labelling
RAC	Committee for Risk Assessment
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals regulation
SVHC	Substance of very high concern
TPA	Tonnes per annum

Further information

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