



# Annex 15 report

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

Substance Name: 2-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one

EC Number: 438-340-0

CAS Number: 119344-86-4

**March 2026**



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# 1. Proposal

**Substance name:** 2-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one

**EC number:** 438-340-0

**CAS number:** 119344-86-4

The substance is proposed to be identified as a substance meeting the criteria of Article 57 (c) of UK REACH owing to its classification in the hazard class toxic for reproduction category 1B<sup>1</sup>.

## **Summary of how the substance meets the criteria set out in Article 57 of UK REACH**

2-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one is included in the GB Mandatory Classification and Labelling (MCL) list. It is covered by the entry with index number 606-158-00-2 and classified in the hazard class toxic for reproduction category 1B (H360Df: May damage the unborn child. Suspected of damaging fertility).

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<sup>1</sup> 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).

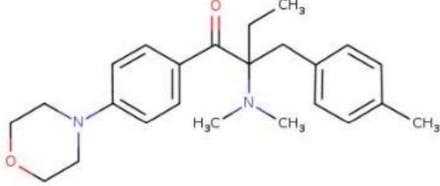
## 2. Justification

### 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**

EC number:	438-340-0
EC name:	2-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one
CAS number:	119344-86-4
IUPAC name:	2-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one
Index number in GB MCL List:	606-158-00-2
Molecular formula:	C <sub>24</sub> H <sub>32</sub> N <sub>2</sub> O <sub>2</sub>
Molecular weight range:	380.5
Synonyms:	Omnirad 379 CGI 113 JRCure 379 Keycure 8179 Irgacure 379

Structural formula:	
Substance type:	Multi-constituent substance

Data source: EU Annex 15 report ([ECHA, 2023](#))

### 2.1.2 Composition of the substance

**Table 1: Constituents other than impurities/additives**

Constituents	Typical concentration range
(R)-2-(4-methylbenzyl)-2-(dimethylamino)-1-[4-(morpholin-4-yl)phenyl]butan-1-one	≥ 10% and < 80% (w/w)
(S)-2-(4-methylbenzyl)-2-(dimethylamino)-1-[4-(morpholin-4-yl)phenyl]butan-1-one	≥ 10% and < 80% (w/w)

Data source: EU Annex 15 report ([ECHA, 2023](#))

There are no impurities and/or additives relevant for to the SVHC identification.

### 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 3: Mandatory classification in the GB MCL list**

Index No	International Chemical Identification	EC No	CAS No	GB MCL list Classification		Aligned with EU CLH <sup>a</sup>
				Hazard Class and Category Code(s)	Hazard statement code(s)	Y/N
606-158-00-2	2-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one	438-340-0	119344-86-4	Repr. 1B Aquatic Acute 1 Aquatic Chronic 1	H360Df H400 H410	Y

<sup>a</sup> 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-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one is covered by the entry with index number 606-158-00-2 in the GB MCL list and it is classified in the hazard class toxic for reproduction category 1B (H360Df: “May damage the unborn child. Suspected of damaging fertility”).

Therefore, the substance satisfies 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

The substance is registered in the range of 1 – 10 tonnes per annum (tpa) under UK REACH. In addition, 13 Downstream User Import Notifications (DUINs<sup>2</sup>) have been submitted.

Under EU REACH, the substance is registered with an aggregated tonnage of  $\geq 100$  tpa<sup>3</sup>.

### 3.2 General description of uses and exposure

2-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one is a photo-initiator and reported to have widespread industrial and professional applications in the formulation and use of coatings and inks/toners. Consumer use is not supported in the EU REACH registration, but there is potential for consumer use of printed and/or coated articles ([ECHA, 2023](#)).

### 3.3 Alternatives

[ECHA, \(2023\)](#) refers to a number of potential alternatives including:

- the structurally similar alpha amino ketones Omnirad 264/389 (EC 827-771-3) and Omnipol 910 (polymer, EC 806-887-89).
- dimeric alpha hydroxy ketones (Esacure KIP 160, EC 472-110-0; Omnirad 127, EC 444-860-9; Esacure ONE, EC 402-990-3)
- acyl phosphine oxides such as Omnirad 819 (EC 423-340- 5)

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<sup>2</sup> 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.

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

Other options suggested included using “blended products” and chemical modification of available photo-initiators to reduce their migration rates.

### **3.4 Additional information**

Two structurally similar photoinitiators, 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one (EC 400-600-6) and 2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone (EC 404-360-3), are already identified as SVHCs and included on the Candidate List under UK and EU REACH. All three substances belong to the chemical group of alkylaminoacetophenones (AAAPs) and have similar properties and uses.

## References

ECHA (2023) PROPOSAL FOR IDENTIFICATION OF A SUBSTANCE OF VERY HIGH CONCERN ON THE BASIS OF THE CRITERIA SET OUT IN REACH ARTICLE 57.

Available at: <https://echa.europa.eu/documents/10162/f7cc2c53-1943-0383-a044-4aff73c80f3> [Accessed: 09/2025]

ECHA Chemicals database; ECHA CHEM. Available at: <https://chem.echa.europa.eu/> [Accessed: 09/2025]

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

<b>CLP</b>	Classification, labelling and packaging
<b>DUIN</b>	Downstream User Import Notifications
<b>ECHA</b>	European Chemicals Agency
<b>EU</b>	European Union
<b>HSE</b>	Health and Safety Executive
<b>MCL</b>	Mandatory Classification and Labelling
<b>REACH</b>	Registration, Evaluation, Authorisation and Restriction of Chemicals regulation
<b>SVHC</b>	Substance of very high concern
<b>tpa</b>	Tonnage per annum





## Further information

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