

Category E Identity Profile – C5 Non-Cyclics

*This CIP represents the boundary substance compositions in the Joint Registrations for substances in **Category E** under the EU legislation REACH¹. It is included in the Lead Registrant dossiers that are submitted to ECHA². For a valid Joint Registration, the joint registrants' own composition needs to fit within the boundaries (concentration ranges) of the constituents and purity described here. For further details, see the section on Category Identity Profile and Boundary Composition at the end of this document.*

Description of composition

The hydrocarbon streams in this category have a carbon number distribution that is typically C4 – C8. The physico-chemical properties associated with these types of UVCBs indicated that they comprise a category based on the range of boiling points from approximately 0°C to 75°C. All of the streams in this category contain significant levels of non-cyclic mono- and di-olefins and more than 1% isoprene.

State / form

Liquid

Manufacturing Process

The C5 non-cyclics category covers hydrocarbon streams that are predominantly derived from the steam cracking process as products of distillation processes. This C5+ cut (typical boiling range 0 to 75 °C) predominately consist of C5 hydrocarbons. The stream contains significant levels of olefins and diolefins.

Constituents

The following constituents were selected based on the category composition data as reported by the registrants. As per the ECHA UVCB guidance, constituents which are CMR and/or PBT above 0.1% and other constituents ≥ 10% are reported in the table below. However, some constituents are still listed in the table as they could contribute to the environmental classification of the streams.

¹ 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

² European Chemicals Agency. [📖](#)

The concentration ranges shown in this table directly reflect the boundary composition submitted in the lead registrant's dossier.

Constituent	Typical Concentration	Concentration Range
Benzene / 71-43-2	ca. 1% (w/w)	0 - 2% (w/w)
Toluene / 108-88-3	ca. 1.5% (w/w)	0 - 3% (w/w)
Xylene / 1330-2-7	ca. 1.5% (w /)	0-3% (w/w)
P-Xylene / 106-42-3	ca. 0.5% (w/w)	0 - 1% (w/w)
O-Xylene / 95-47-6	ca. 0.5% (w/w)	0 - 1% (w/w)
M-Xylene / 108-38-3	ca. 0.5% (w/w)	0 - 1% (w/w)
Ethylbenzene / 100-41-4	ca. 1% (w/w)	0 - 2% (w/w)
1-methyl-3-ethylbenzene (3-ethyltoluene) / 620-14-4	ca. 0.5% (w/w)	0 - 1% (w/w)
Styrene / 100-42-5	ca. 0.5% (w/w)	0 - 1% (w/w)
3a,4,5,6,7,7a-Hexahydro-4,7-methano-1H-indene / 4488-57-7	ca. 0.5% (w/w)	0 - 1% (w/w)
Dicyclopentadiene (DCPD) / 77-73-6	ca. 14.5% (w/w)	0 - 29% (w/w)
Cyclopentadiene / 542-92-7	ca. 7.5% (w/w)	0 - 15% (w/w)
Isomer of C5H8 (1-methylcyclobutene, 1,2-Dimethylcyclopropene) / 1489-60-7 / 14309-32-1	ca. 12.5% (w/w)	0 - 25% (w/w)
Cyclopentene / 142-29-0	ca. 15% (w/w)	0 – 30 % (w/w)
Cyclopentane / 287-92-3	ca. 10% (w/w)	0 - 20% (w/w)
Buta-1,3-diene / 106-99-0	ca. 1% (w/w)	0 - 2% (w/w)
1,4-pentadiene / 591-93-5	ca. 2% (w/w)	0 - 4% (w/w)
2,3-pentadiene / 591-96-8	ca. 4.5% (w/w)	0 - 9% (w/w)
Isoprene (2-methyl-1,3-butadiene) / 78-79-5	ca. 11% (w/w)	0 - 22% (w/w)
Cis-1,3-pentadiene / 1574-41-0	ca. 14% (w/w)	0 - 28% (w/w)
Trans-1,3-pentadiene / 2004-70-8	ca. 24% (w/w)	0 - 48% (w/w)
1,3-pentadiene / 504-60-9	ca. 45% (w/w)	0 - 95% (w/w)
Hexadiene / 592-48-3	ca. 4% (w/w)	0 - 8% (w/w)
(Z)-But-2-ene / 590-18-1	ca. 1% (w/w)	0 - 2% (w/w)

Constituent	Typical Concentration	Concentration Range
(E)-But-2-ene / 624-64-6	ca. 1% (w/w)	0 - 2% (w/w)
1-pentene / 109-67-1	ca. 2% (w/w)	0 - 4% (w/w)
2-methyl-1-butene / 563-46-2	ca. 4% (w/w)	0 - 8% (w/w)
Cis-2-pentene / 627-20-3	ca. 2.5% (w/w)	0 - 5% (w/w)
Trans-2-pentene / 646-04-8	ca. 5.5% (w/w)	0 - 11% (w/w)
Pent-2-ene / 109-68-2	ca. 9.5 % (w/w)	0 – 19 % (w/w)
2-methyl-2-butene / 513-35-9	ca. 7% (w/w)	0 - 14% (w/w)
1-Hexene / 592-41-6	ca. 2.5% (w/w)	0 - 5% (w/w)
3-methyl-1-butene / 563-45-1	ca. 4.5% (w/w)	0 - 9% (w/w)
Isopentane / 78-78-4	ca. 13.5% (w/w)	0 – 27% (w/w)
N-Pentane / 109-66-0	ca. 16% (w/w)	0 - 32% (w/w)
N-hexane / 110-54-3	ca. 4.5% (w/w)	0 - 9% (w/w)
2,3-dimethylbutane / 79-29-8	ca. 1.5% (w/w)	0 - 3% (w/w)
Isohexane (2-methylpentane) / 107-83-5	ca. 5% (w/w)	0 - 10% (w/w)
2,2-dimethylbutane / 78-83-2	ca. 10.5% (w/w)	0 - 21% (w/w)
3-methylpentane / 96-14-0	ca. 3% (w/w)	0 - 6% (w/w)
PIONA		
Paraffins	ca. 20 %	0 - ≤ 35 % (w/w)
Isoparaffins	ca. 20 % (w/w)	0 - ≤ 35 % (w/w)
Olefins	ca. 50 % (w/w)	0 - < 100 % (w/w)
Naphthenics	ca. 15 % (w/w)	0 - < 20 % (w/w)
Aromatics	ca. 5 % (w/w)	0 - < 10 % (w/w)

Impurities

Not applicable to UVCBs

Additives

Not applicable to UVCBs

Category Identity Profile and Boundary Composition

This Category Identity Profile has been produced following the currently available ECHA guidance³ by the Analytical Working Group, a Working Group of the LOA Technical Steering Committee, following consultation with Registrants.

The CIP defines the compositional boundaries of the substance that is to be (or has been) registered and consequently the substance for which intrinsic hazard data is submitted, as defined by Annexes VII-X of REACH. It is a document usually agreed between the registrants and potential registrants.

With the introduction of IUCLID 6⁴ in April 2016 it became necessary for the Lead Registrant to enter the CIP details into Section 1.2 of IUCLID as the “boundary composition” of the registration prior to any new submission or spontaneous update. Failure to add it will cause rejection of the dossier when uploading into REACH IT.

The business rules of REACH IT also check that information is present which verify that minimum information is present: at least one constituent must be provided, and for each constituent, impurity and additive a reference substance with identifiers, and a concentration range must be given. For UVCB substances, a description of the starting material and process that defines the UVCB composition must be indicated. After submission, the information is displayed on the joint submission page so it can be seen by members of the Substance Information Exchange Forum (SIEF).

It is not necessary for joint registrants to report on boundary composition. However, joint registrants are required to enter their legal entity composition which is automatically checked against the substance boundary composition to ensure that the joint registrant’s composition fits into the boundary composition of the CIP.

If a joint registrant is outside the CIP and boundary composition, they need to state this in their dossier - details are given in the ECHA guidance.

If you have any question on this SIP please contact sief.manager@loa-reach.com

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³ ECHA (2016) Guidance for identification and naming of substances under REACH and CLP June 2016 Draft Version Current link - [📖](#)

⁴ The software used for producing dossiers for submission to ECHA under REACH. <https://iuclid6.echa.europa.eu/>