

Evonik Röhm GmbH Kirschenallee 64293 Darmstadt

To whom it may concern

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Dr. Werner Ude
Chemicals Management
Product Safety / Toxicology
S1-US-PT/Dr. Ud/Nd
Phone +49 6151 18-4972
Fax +49 6151 18-3213
werner.ude@evonik.com

Characteristics of sustainability of our products

Dear Sir or Madam

Thank you for your request concerning lifecycle data and the sustainability characteristics of our products.

Methacrylate polymers and their precursors/monomers have been subject to specific research over a long period at Evonik Röhm.

Although conclusive evaluations especially for the procedures and products of the Evonik Röhm GmbH are still pending at present, we can derive already relative good estimations for our products, based on data published by PlasticsEurope, the European association of the plastics industry and other frequently used databases (e.g. Ecoinvent, GaBi).

Carbon Footprint

According to that, we can specify a "carbon footprint" in a range of 3.8 to 6.8 kg CO₂ equivalents (GWP100)/kg for the production of 1 kg MMA (methyl methacrylate) within the limits of a "cradle to gate" assessment – meaning: from raw material production to the factory gate – including all transport- and energy-related emissions. The CO₂ balance for all subsequent polymers falls within a range of 5.3 – 7.3 kg CO₂ equivalents/ kg (beads/moulding compounds). The production of acrylic sheet adds an additional kilogram CO₂ equivalent to the balance.

The consumption of primary energy has been estimated to 90 to 116 MJ/kg for MMA monomer, approx. 120 MJ/kg for polymer (beads/ moulding compounds) and 130 MJ/kg for acrylic sheet (PLEXIGLAS®).

Evonik Röhm GmbH
Kirschenallee
64293 Darmstadt
Telefon +49 6151 18-01
Telefax +49 6151 18-02
www.evonik.de

Aufsichtsrat
Patrik Wohlhauser, Vorsitzender
Geschäftsführung
Gregor Hetzke, Sprecher
Dr. Michael Müller-Hennig,
Dr. Wilhelm Otten

Sitz der Gesellschaft ist Darmstadt
Registergericht
Amtsgericht Darmstadt
Handelsregister B 85142

Monomers and polymers with more complex production processes will provide an accordingly higher contribution to the greenhouse effect with regard to their primary energy consumption in an assessment ending at the factory gate. Depending on uses and field of application in the utilisation and recycling phases – depending on the duration of their useful life – it is possible to realise savings of CO₂ equivalents, which can compensate the additional emissions in a “cradle to gate” assessment significantly. Detailed assessments of this kind are also in preparation in our company.

Impacts on further environmental effect categories, like potential for eutrophication, ozone depletion potential or acidification may be derived from the detailed mass balances and emissions values provided in the publications of PlasticsEurope (www.plasticseurope.org).¹

Conservation of resources

PLEXIGLAS® is a transparent plastic material with an exceedingly weather-resistance because of its chemical constitution. Transparent PLEXIGLAS® used in outdoor applications has not to be substituted up to 30 years due to the absence of yellowing and haze respectively and can therefore save resources.

PLEXIGLAS® can be cleaved into its original chemical components to almost 100 % in a unique recycling process. By producing a new plastic, the product will nearly have the same properties.

Health


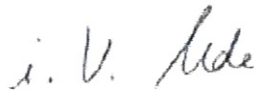
PLEXIGLAS® does not contain any substances which are very toxic, toxic, carcinogenic, mutagenic respectively toxic for reproduction in its chemical basic structure. Furthermore it is not harmful to the environment or human health. In case of fire people are able to find the exit, because in general PLEXIGLAS® burns with low smoke emission. This plastic usually contains none or at most very small amounts of halogens, nitrogen, sulphur, heavy metals or aromatics.

Public Relations

Since 2007, Evonik Röhm GmbH has been a founding member of the DGNB (Deutsche Gesellschaft für nachhaltiges Bauen, German association for sustainable building). In this context we also respond to questions of

international GBCs (Green Building Councils) regarding sustainable building with our products (PLEXIGLAS®, amongst others).
Please do not hesitate to contact us for further information.

Best regards
Evonik Röhm GmbH


i.V. Hoffmann
i. V. Dr. Ude

¹ Generally we would like to point out that variations in the numerical values obtained from different sources may have technological as well as methodological reasons (e.g. limits of the assessment, allocation in a typical "verbund" production or being part of co-products). A generally accepted ISO standard for the calculation of "carbon footprints" is in preparation.