



DIMETHYLFUMARATE (DMFu)

Other Names DMF
2-butenedioic acid dimethyl ester
Dimethyl (E)- butenedioate

CAS Number	Substance
624-49-7	Dimethylfumarate (DMFu)

May Be Found In

- Leather products
- Desiccant sachets and pads

Dimethylfumarate (DMFu) is used as a biocide to prevent mold during storage and transport of leather goods, such as footwear, in a humid climate.

Uses in the Supply Chain

DMFu is often placed in pads or desiccant sachets which is placed in the product or its packaging. It will evaporate over time and impregnate the leather, protecting it from mold which can cause the leather to deteriorate. It can also be applied directly to the surface of the product.

Why DMFu is Restricted

- Legislation in major markets around the world restricts the presence of DMFu in finished products.
- Dimethylfumarate can cause painful dermatitis at low concentrations which can be difficult to treat. Symptoms may include itching, irritation, redness, and burns.
- DMFu in some cases can cause acute respiratory difficulties.¹
- Chemical hazard information for many chemicals can be found at the following external databases:
 - GESTIS Substance Database: [Here \(external link\)](#)
 - US National Library of Medicine: [Here \(external link\)](#)
 - USA EPA Occupational Chemical Database: [Here \(external link\)](#)

Sourcing Compliant Materials from Your Suppliers

- Contact your suppliers and explain that you require their manufactured materials to be compliant with the current AFIRM RSL limit.
- Share this information sheet with your material suppliers so they have full visibility and understand your sourcing requirements.
- Make sure that any active packaging such as desiccant sachets do not include DMFu

Safer Alternatives

The following substances have been identified as examples of safer alternatives and may be suitable for your production needs.

- DMFu-free desiccant sachets or pads are available from several suppliers.
- Depending on Brand requirements, it may be acceptable to use biocidal substances that are approved for use from product-type 9 of the European Union Biocidal Products Directive are quaternary ammonium compounds (with a silyl function) and polyhexamethylene biguanide (PHMB).²
- Any chosen alternative must be ZDHC MRSL compliant whenever applicable.³



Chemical Information Document

Additional Information

Visit ECHA's Candidate List of substances of very high concern to view dossiers for many restricted substances <https://echa.europa.eu/candidate-list-table>.

References

- ¹ Hohenstein Institute & Textile Exchange. (2017). Chemical Snapshots – Dimethylfumurate (DMFu). Revision 0.2. Retrieved March 17, 2017.
- ² European Union Biocidal Active Substances – <https://echa.europa.eu/information-on-chemicals/biocidal-active-substances>
- ³ Manufacturing Restricted Substances List (Publication). (2015, December). Retrieved <http://www.roadmaptozero.com/programme/manufacturing-restricted-substances-list-mrsl-conformity-guidance/>
- ⁴ Apparel and Footwear International RSL Management Group (Ed.). (2018, January 31). Restricted Substances List (RSL). Retrieved <http://afirm-group.com/afirm-rsl/>