

SERIE INTEGRATIVA TESSILE

elaborata dal Tavolo Tecnico AIFA sull'uso clinico degli apteni per *patch test*

	APTENE PER <i>PATCH TEST</i>	%, veicolo	Autorizzazione <i>ope legis/AIC</i>
1	ROSSO BASE 46 <i>Basic red 46</i> CAS 12221-69-1	1%, vas	NO
2	DIMETILFUMARATO (DMFu) <i>Dimethyl fumarate</i> CAS 624-49-7	0.01%, vas	NO
3	DISPERSO BLU 35 <i>Disperse blue 35</i> CAS 12222-75-2	1%, vas	NO
4	DISPERSO BLU 106 <i>Disperse blue 106</i> CAS 12223-01-7	1%, vas	NO
5	DISPERSO BLU 124 <i>Disperse blue 124</i> CAS 61951-51-7	1%, vas	NO
6	DISPERSO GIALLO 3 <i>Disperse yellow 3</i> CAS 2832-40-8	1%, vas	SI
7	DISPERSO ROSSO 1 <i>Disperse red 1</i> CAS 2872-52-8	1%, vas	SI
8	DISPERSO ROSSO 17 <i>Disperse red 17</i> CAS 3179-89-3	1%, vas	SI
9	RESINA MELAMINO FORMALDEIDE <i>Melamine Formaldehyde Resin</i> CAS 9003-08-1	7%, vas	NO
10	RESINA UREA FORMALDEIDE <i>Urea formaldehyde resin</i> CAS 9011-05-6	10%, vas	SI

vas =vasellina, *petrolatum*

BIBLIOGRAFIA

ROSSO BASE 46

- Slodownik D, Williams J, Tate B, Tam M, Cahill J, Frowen K, Nixon R. Textile allergy-the Melbourne experience. *Contact Dermatitis*. 2011 Jul;65(1):38-42.
- Opie J, Lee A, Frowen K, Fewings J, Nixon R. Foot dermatitis caused by the textile dye Basic Red 46 in acrylic blend socks. *Contact Dermatitis*. 2003 Dec;49(6):297-303.

DIMETILFUMARATO

- Fraga A, Silva R, Filipe P, Scharrer K, Borges Da Costa J, Nussbaum P, Gomes MM.- Allergic contact dermatitis to dimethyl fumarate in footwear. *Contact Dermatitis* 2010;
- Silvestre JF, Toledo F, Mercader P, Giménez-Arnau AM; Spanish Research Group of Allergic Contact Dermatitis due to Dimethyl Fumarate in Spain. A Summary of shoe allergic contact dermatitis caused by dimethyl fumarate in Spain. *Contact Dermatitis*. 2011 Aug;65(2):122-3. doi: 10.1111/j.1600-0536.2011.01925.x.
- Giménez-Arnau A, Silvestre JF, Mercader P, De la Cuadra J, Ballester I, Gallardo F, Pujol RM, Zimerson E, Bruze M. Shoe contact dermatitis from dimethyl fumarate: clinical manifestations, patch test results, chemical analysis, and source of exposure. *Contact Dermatitis*. 2009 Nov;61(5):249-60. doi: 10.1111/j.1600-0536.2009.01628.x.
- Santiago F, Andrade P, Gonçalo M, Mascarenhas R, Figueiredo A. Allergic contact dermatitis to shoes induced by dimethylfumarate: A new allergen imported from China. *Dermatol Online J*. 2010 Mar 15;16(3):3.
- Toledo F, Silvestre JF, Cuesta L, Borrego L, Pérez M. Correlation between lesion site and concentration of dimethyl fumarate in different parts of shoes in patients with contact dermatitis caused by dimethyl fumarate in footwear. *Contact Dermatitis*. 2011 Aug;65(2):92-5. doi: 10.1111/j.1600-0536.2011.01922.x.
- Pastor-Nieto MA, Quintanilla-López JE, Gómara B, Yanguas-Bayona I, Hervella M, Sánchez-Herreros C, Cuevas J. Contact dermatitis caused by dimethyl fumarate in wallets. *Contact Dermatitis*. 2013;68(2):118-20. doi: 10.1111/j.1600-0536.2012.02165.x.
- Rantanen T. The cause of the Chinese sofa/chair dermatitis epidemic is likely to be contact allergy to dimethylfumarate, a novel potent contact sensitizer. *Br J Dermatol*. 2008 Jul;159(1):218-21. doi: 10.1111/j.1365-2133.2008.08622.x
- Mercader P, Serra-Baldrich E, Alomar A. Contact dermatitis to dimethylfumarate in armchairs. *Allergy*. 2009 May;64(5):818-9. doi: 10.1111/j.1398-9995.2009.01978.x.
- Susitaival P, Winhoven SM, Williams J, Lammintausta K, Hasan T, Beck MH, Gruvberger B, Zimerson E, Bruze M. An outbreak of furniture related dermatitis ('sofa dermatitis') in Finland and the UK: history and clinical cases. *J Eur Acad Dermatol Venereol*. 2010 Apr;24(4):486-9. doi: 10.1111/j.1468-3083.2009.03429.x.
- Lammintausta K, Zimerson E, Hasan T, Susitaival P, Winhoven S, Gruvberger B, Beck M, Williams JD, Bruze M. An epidemic of furniture-related dermatitis: searching for a cause. *Br J Dermatol*. 2010 Jan;162(1):108-16. doi: 10.1111/j.1365-2133.2009.09419.x.
- Doumit J, Gavigan G, Pratt M. Allergic contact dermatitis from dimethyl fumarate after contact with a Chinese sofa. *J Cutan Med Surg*. 2012;16(5):353-6. doi: 10.1177/120347541201600514.
- Kursawe Larsen C, Ahlström MG, Schwensen JFB. Allergic Contact Dermatitis After Use of Headphones: A New Case of Contact Allergy to Dimethylfumarate (DMF). *Contact Dermatitis*. 2025 Aug;93(2):183-185. doi: 10.1111/cod.14806.
- Foti C, Zambonin CG, Cassano N, Aresta A, Damascelli A, Ferrara F, Vena GA. Occupational allergic contact dermatitis associated with dimethyl fumarate in

clothing. *Contact Dermatitis*. 2009 Aug;61(2):122-4. doi: 10.1111/j.1600-0536.2009.01567.x.

- Stingeni L, Neve D, Tondi V, Bacci M, Lisi P. Immunological contact urticaria caused by dimethyl fumarate. *Contact Dermatitis*. 2014 Sep;71(3):180-3. doi: 10.1111/cod.12230.
- Antolin-Amerigo D, Sánchez-González MJ, Barbarroja-Escudero J, Ayuso-Peralta L, Bellón-Heredia T, Ortega-Berrueto MA, Alvarez-Mon M, Rodríguez-Rodríguez M. Delayed Hypersensitivity Reaction to Oral Dimethyl Fumarate. *J Invest Allergol Clin Immunol*. 2018 Jun;28(3):201-203. doi: 10.18176/jiaci.0239.
- Švecová D, Šimaljaková M, Doležalová A. Footwear contact dermatitis from dimethyl fumarate. *Int J Dermatol*. 2013 Jul;52(7):803-7. doi: 10.1111/j.1365-4632.2012.05512.x.
- Lammintausta K, Zimerson E, Winhoven S, Susitaival P, Hasan T, Gruvberger B, Williams J, Beck M, Bruze M. Sensitization to dimethyl fumarate with multiple concurrent patch test reactions. *Contact Dermatitis*. 2010 Feb;62(2):88-96. doi: 10.1111/j.1600-0536.2009.01662.x.
- Giménez-Arnau A, Silvestre JF, Mercader P, De la Cuadra J, Ballester I, Gallardo F, Pujol RM, Zimerson E, Bruze M. Shoe contact dermatitis from dimethyl fumarate: clinical manifestations, patch test results, chemical analysis, and source of exposure. *Contact Dermatitis*. 2009 Nov;61(5):249-60. doi: 10.1111/j.1600-0536.2009.01628.x.

DISPERSO BLU 35

- Dabestani R, Reszka KJ, Davis DG, Sik RH, Chignell CF. Spectroscopic studies of cutaneous photosensitizing agents--XVI. Disperse blue 35. *Photochem Photobiol*. 1991 Jul;54(1):37-42. doi: 10.1111/j.1751-1097.1991.tb01982.x. PMID: 1658824
- Ahuja V, Platzek T, Fink H, Sonnenburg A, Stahlmann R. Study of the sensitising potential of various textile dyes using a biphasic murine local lymph node assay. *Arch Toxicol*. 2010 Sep;84(9):709-18. doi: 10.1007/s00204-010-0566-0. Epub 2010 Jun 29. PMID: 20585758
- Hjorth N, Möller H. Phototoxic Textile Dermatitis ("Bikini Dermatitis"). *Arch Dermatol*. 1976;112(10):1445-1447. doi:10.1001/archderm.1976.01630340063018
- Hernández Fernández CP, Borrego L, Giménez Arnau AM, Zaragoza Ninet V, Sanz Sánchez T, Miquel Miquel FJ, González Pérez R, Silvestre Salvador JF, Córdoba Guijarro S, Carrascosa Carrillo JM, Gatica Ortega ME, Ruiz González I, Mercader García P, Tous Romero F, Serra Baldrich E, Pastor-Nieto MA, Rodríguez Serna M, Sánchez Pérez J, Sánchez Gilo A, Melé Ninot G, Sánchez-Pedreño Guillén P, de Vega Martínez M, Descalzo MÁG, Doval IG. Sensitization to textile dyes in Spain: Epidemiological situation (2019-2022). *Contact Dermatitis*. 2024 May;90(5):486-494. doi: 10.1111/cod.14513. Epub 2024 Feb 13. PMID: 38348533
- Nijman L, Rustemeyer T, Franken SM, Ipenburg NA. The prevalence and relevance of patch testing with textile dyes. *Contact Dermatitis*. 2023 Mar;88(3):220-229. doi: 10.1111/cod.14260. Epub 2022 Dec 12. PMID: 36461774; PMCID: PMC10108160
- Slodownik D, Williams J, Tate B, Tam M, Cahill J, Frowen K, Nixon R. Textile allergy-the Melbourne experience. *Contact Dermatitis*. 2011 Jul;65(1):38-42. doi: 10.1111/j.1600-0536.2010.01861.x. Epub 2011 Feb 10. PMID: 21309788

DISPERSO BLU 106

- Lisi P, Stingeni L, Cristaudo A, Foti C, Pigatto P, Gola M, Schena D, Corazza M, Bianchi L. Clinical and epidemiological features of textile contact dermatitis: an Italian multicentre study. *Contact Dermatitis*. 2014 Jun;70(6):344-50.
- Ashley B Wentworth 1, Donna M Richardson, Mark D P Davis. Patch testing with textile allergens: the mayo clinic experience. *Dermatitis* 2012 Nov-Dec;23(6):269-74

- Laura Malinauskiene 1, Magnus Bruze, Kristina Ryberg, Erik Zimerson, Marlène Isaksson. Contact allergy from disperse dyes in textiles: a review. *Contact Dermatitis* 2013 Feb;68(2):65-75
- Annice Heratizadeh, Johannes Geier, Sonja Molin, Thomas Werfel. Contact sensitization in patients with suspected textile allergy. Data of the Information Network of Departments of Dermatology (IVDK) 2007-2014. *Contact Dermatitis* 2017 Sep;77(3):143-xxx.
- Lars Nijman, Thomas Rustemeyer, Sylvie M Franken, Norbertus A Ipenburg. The prevalence and relevance of patch testing with textile dyes. *Contact Dermatitis* 2023;88(3):220-229
- Carlos Pelayo Hernández Fernández, Leopoldo Borrego, Ana María Giménez Arnau, et al. Sensitization to textile dyes in Spain: Epidemiological situation (2019-2022). *Contact Dermatitis* 2024;90(5):486-494

DISPERSO BLU 124

- Heratizadeh A et al. Contact sensitization in patients with suspected textile allergy. Data of the Information Network of Departments of Dermatology (IVDK) 2007-2014. *Contact Dermatitis*. 2017; 77(3): 143-150. doi: 10.1111/cod.12760.
- Isaksson M, Ale I, Andersen KE, Diepgen T, Goh CL, Goossens R A, Jerajani H, Maibach HI, Sasseville D, Bruze M. Patch testing to a textile dye mix by the international contact dermatitis research group. *Dermatitis*. 2015 Jul-Aug;26(4):170-6. doi: 10.1097/DER.000000000000125.
- Lisi P, Stingeni L, Cristaudo A, Foti C, Pigatto P, Gola M, Schena D, Corazza M, Bianchi L. Clinical and epidemiological features of textile contact dermatitis: an Italian multicentre study. *Contact Dermatitis*. 2014 Jun;70(6):344-50. doi: 10.1111/cod.12179
- Wentworth AB, Yiannias JA, Keeling JH, Hall MR, Camilleri MJ, Drage LA, Torgerson RR, Fett DD, Prakash AV, Scalf LA, Allen EM, Johnson JS, Singh N, Nordberg Linehan DL, Killian JM, Davis MD. Trends in patch-test results and allergen changes in the standard series: a Mayo Clinic 5-year retrospective review (January 1, 2006, to December 31, 2010). *J Am Acad Dermatol*. 2014 Feb; 70(2): 269-75.e4. doi: 10.1016/j.jaad.2013.09.047.
- Wentworth AB, Richardson DM, Davis MD. Patch testing with textile allergens: the mayo clinic experience. *Dermatitis*. 2012 Nov-Dec;23(6):269-74. doi: 10.1097/DER.0b013e318277ca3d.
- Slodownik D, Williams J, Tate B, Tam M, Cahill J, Frowen K, Nixon R. Textile allergy-the Melbourne experience. *Contact Dermatitis*. 2011 Jul;65(1):38-42. doi: 10.1111/j.1600-0536.2010.01861.x.
- Uter W, Hildebrandt S, Geier J, Schnuch A, Lessmann H. Current patch test results in consecutive patients with, and chemical analysis of, disperse blue (DB) 106, DB 124, and the mix of DB 106 and 124. *Contact Dermatitis*. 2007 Oct;57(4):230-4. doi: 10.1111/j.1600-0536.2007.01228.x.
- Giusti F, Massone F, Bertoni L, Pellacani G, Seidenari S. Contact sensitization to disperse dyes in children. *Pediatr Dermatol*. 2003 Sep-Oct;20(5):393-7. doi: 10.1046/j.1525-1470.2003.20504.x.
- Uter W, Geier J, Lessmann H, Hausen BM; IVDK and the German Contact Dermatitis Research Group. Information Network of Departments of Dermatology. Contact allergy to Disperse Blue 106 and Disperse Blue 124 in German and Austrian patients, 1995 to 1999. *Contact Dermatitis*. 2001 Mar;44(3):173-7. doi: 10.1034/j.1600-0536.2001.044003173.x.
- Pratt M, Taraska V. Disperse blue dyes 106 and 124 are common causes of textile dermatitis and should serve as screening allergens for this condition. *Am J Contact Dermat*. 2000 Mar;11(1):30-41. doi: 10.1016/s1046-199x(00)90030-7.
- Lazarov A, Trattner A, David M, Ingber A. Textile dermatitis in Israel: a retrospective

study. *Am J Contact Dermat.* 2000 Mar;11(1):26-9. doi: 10.1016/s1046-199x(00)90029-0.

DISPERSO GIALLO 3

- Annice Heratizadeh, Johannes Geier, Sonja Molin, Thomas Werfel. Contact sensitization in patients with suspected textile allergy. Data of the Information Network of Departments of Dermatology (IVDK) 2007-2014
- Isaksson M, Ryberg K, Goossens A, Bruze M. Recommendation to include a textile dye mix in the European baseline series. *Contact Dermatitis.* 2015 Jul;73(1):15-20. doi: 10.1111/cod.12400. Epub 2015 Apr 27. PMID: 25925831.
- Thomas BR, White IR, McFadden JP, Banerjee P. Positive relationship-intensity of response to p-phenylenediamine on patch testing and cross-reactions with related allergens. *Contact Dermatitis.* 2014 Aug;71(2):98-101. doi: 10.1111/cod.12255. Epub 2014 May 22. PMID: 24850439.
- Lisi P, Stingeni L, Cristaudo A, Foti C, Pigatto P, Gola M, Schena D, Corazza M, Bianchi L. Clinical and epidemiological features of textile contact dermatitis: an Italian multicentre study. *Contact Dermatitis.* 2014 Jun;70(6):344-50. doi: 10.1111/cod.12179. Epub 2014 Jan 7. PMID: 24392992.
- Malinauskiene L, Zimerson E, Bruze M, Ryberg K, Isaksson M. Are allergenic disperse dyes used for dyeing textiles? *Contact Dermatitis.* 2012 Sep;67(3):141-8. doi: 10.1111/j.1600-0536.2012.02129.x. Epub 2012 Jul 2. PMID: 22748162.
- Malinauskiene L, Zimerson E, Bruze M, Ryberg K, Isaksson M. Textile dyes Disperse Orange 1 and Yellow 3 contain more than one allergen as shown by patch testing with thin-layer chromatograms. *Dermatitis.* 2011 Nov-Dec;22(6):335-43. doi: 10.2310/6620.2011.11043. PMID: 22653007.
- Malinauskiene L, Zimerson E, Bruze M, Ryberg K, Isaksson M. Patch testing with the textile dyes Disperse Orange 1 and Disperse Yellow 3 and some of their potential metabolites, and simultaneous reactions to para-amino compounds. *Contact Dermatitis.* 2012 Sep;67(3):130-40. doi: 10.1111/j.1600-0536.2012.02080.x. Epub 2012 May 25. PMID: 22624827.
- Goon AT, Gilmour NJ, Basketter DA, White IR, Rycroft RJ, McFadden JP. High frequency of simultaneous sensitivity to Disperse Orange 3 in patients with positive patch tests to para-phenylenediamine. *Contact Dermatitis.* 2003 May;48(5):248-50. doi: 10.1034/j.1600-0536.2003.00049.x. PMID: 12868964.
- Seidenari S, Mantovani L, Manzini BM, Pignatti M. Cross-sensitizations between azo dyes and para-amino compound. A study of 236 azo-dye-sensitive subjects. *Contact Dermatitis.* 1997 Feb;36(2):91-6. doi: 10.1111/j.1600-0536.1997.tb00420.x. PMID: 9062744.

DISPERSO ROSSO 1

- Marlène Isaksson, Kristina Ryberg, An Goossens and Magnus Bruze. Recommendation to include a textile dye mix in the European baseline series. *Contact Dermatitis*, 2015
- Ryberg K, Agner T, Andersen KE, Bircher A, Diepgen T, Foti C, Giménez-Arnau A, Gonçalo M, Goossens A, Johansen JD, Le Coz C, Maibach HI, Bruze M. Patch testing with a textile dye mix—a multicentre study. *Contact Dermatitis* 2014
- Laura Malinauskiene, Magnus Bruze, Kristina Ryberg, Erik Zimerson and Marlene Isaksson. Contact allergy from disperse dyes in textiles—a review. *Contact Dermatitis* 2012
- Kristina Ryberg, An Goossen, Marlène Isaksson, Birgitta Gruvberger, Erik Zimerson and Magnus Bruze. Patch Testing with a Textile Dye Mix in a Baseline Series in Two Countries. *Acta Derm Venereol*, 2011
- F. Giusti, M.D., F. Massone, M.D., L. Bertoni, Ph.D., G. Pellacani, M.D., and S. Seidenari, M.D. Contact Sensitization to Disperse Dyes in Children. *Pediatric*

DISPERSO ROSSO 17

- Stenton J, Dahlin J, Antelmi A, Bruze M, Svedman C, Zimerson E, Hamnerius N, Pontén A, Isaksson M. Patch testing with a textile dye mix with and without Disperse Orange 3. Contact Dermatitis. 2020 Nov;83(5):387-390. doi: 10.1111/cod.13660. Epub 2020 Sep 14. PMID: 32666533
- Ryberg K, Agner T, Andersen KE, Bircher A, Diepgen T, Foti C, Giménez-Arnau A, Gonçalo M, Goossens A, Johansen JD, Le Coz C, Maibach HI, Bruze M. Patch testing with a textile dye mix--a multicentre study. Contact Dermatitis. 2014 Oct;71(4):215-23. doi: 10.1111/cod.12244. Epub 2014 May 12. PMID: 24815318
- Isaksson M, Ale I, Andersen KE, Diepgen T, Goh CL, Goossens R A, Jerajani H, Maibach HI, Sasseville D, Bruze M. Patch testing to a textile dye mix by the international contact dermatitis research group. Dermatitis. 2015 Jul-Aug;26(4):170-6. doi: 10.1097/DER.000000000000125. PMID: 26172486.
- Malinauskiene L, Bruze M, Ryberg K, Zimerson E, Isaksson M. Contact allergy from disperse dyes in textiles: a review. Contact Dermatitis. 2013 Feb;68(2):65-75. doi: 10.1111/cod.12001. PMID: 23289879.
- Ryberg K, Goossens A, Isaksson M, Gruvberger B, Zimerson E, Nilsson F, Björk J, Hindsén M, Bruze M. Is contact allergy to disperse dyes and related substances associated with textile dermatitis? Br J Dermatol. 2009 Jan;160(1):107-15. doi: 10.1111/j.1365-2133.2008.08953.x. Epub 2008 Nov 25. PMID: 19067698.
- Heratizadeh A, Geier J, Molin S, Werfel T. Contact sensitization in patients with suspected textile allergy. Data of the Information Network of Departments of Dermatology (IVDK) 2007-2014. Contact Dermatitis. 2017 Sep;77(3):143-150. doi: 10.1111/cod.12760. Epub 2017 Feb 24. PMID: 28233329.
- Isaksson M, Ryberg K, Goossens A, Bruze M. Recommendation to include a textile dye mix in the European baseline series. Contact Dermatitis. 2015 Jul;73(1):15-20. doi: 10.1111/cod.12400. Epub 2015 Apr 27. PMID: 25925831.
- Ryberg K, Goossens A, Isaksson M, Gruvberger B, Zimerson E, Bruze M. Patch testing with a textile dye mix in a baseline series in two countries. Acta Derm Venereol. 2011 Jun;91(4):422-7. doi: 10.2340/00015555-1098. PMID: 21547346.
- Lazarov A, Trattner A, David M, Ingber A. Textile dermatitis in Israel: a retrospective study. Am J Contact Dermat. 2000 Mar;11(1):26-9. doi: 10.1016/s1046-199x(00)90029-0. PMID: 10684386.
- Ryberg K, Goossens A, Isaksson M, Gruvberger B, Zimerson E, Bruze M. Patch testing with a textile dye mix and its constituents in a baseline series. Dermatitis. 2010 Jan-Feb;21(1):49-56. PMID: 20137739.

RESINA MELAMINO FORMALDEIDE

- Aalto-Korte K, Jolanki R, Estlander T. Formaldehyde-negative allergic contact dermatitis from melamine-formaldehyde resin. Contact Dermatitis. 2003 Oct;49(4):194-6. doi: 10.1111/j.0105-1873.2003.0219.x.
- Traidl S, Werfel T, Ruëff F, Simon D, Lang C, Geier J. Patch test results in patients with suspected contact allergy to shoes: Retrospective IVDK data analysis 2009-2018. Contact Dermatitis. 2021 Sep;85(3):297-306. doi: 10.1111/cod.13868. Epub 2021 May 11.
- García Gavin J, Loureiro Martinez M, Fernandez-Redondo V, Seoane MJ, Toribio J. Contact allergic dermatitis from melamine formaldehyde resins in a patient with a negative patch-test reaction to formaldehyde. Dermatitis. 2008 Mar-Apr;19(2):E5-6.
- Wentworth AB(1), Richardson DM, Davis MD. Patch testing with textile allergens: the mayo clinic experience. Dermatitis. 2012 Nov-Dec;23(6):269-74. doi: 10.1097/DER.0b013e318277ca3d.

RESINA UREA FORMALDEIDE

- Fowler JF. Formaldehyde as a Textile Allergen. Published online June 26, 2003.
- Reich HC, Warshaw EM. Allergic contact dermatitis from formaldehyde textile resins. *Dermat Contact Atopic Occup Drug*. 2010;21(2):65-76.
- Lisi P, Stingeni L, Cristaudo A, et al. Clinical and epidemiological features of textile contact dermatitis: an Italian multicentre study. *Contact Dermatitis*. 2014;70(6):344-350.
- McKenzie NC, Buras MR, Yiannias JA, et al. Cost-effectiveness of patch testing allergens within the same group: A computational approach to optimize formaldehyde-related allergen selection. *J Am Acad Dermatol*. 2024;91(5):843-847.
- Traidl S, Werfel T, Ruëff F, et al. Patch test results in patients with suspected contact allergy to shoes: Retrospective IVDK data analysis 2009-2018. *Contact Dermatitis*. 2021;85(3):297-306.