



Change Log V3.1 to V4.0

General changes

1. General description for testing methodology, its limitations and usability explained.
2. Supplier, testing and formulator specific information provided for better understanding.
3. Test method format changed to a more scientific format

Chapter 1 ZDHC MRSL

1A. Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): including all isomers

1. Added test method ISO 18218-1:2023
2. Limit values for APEOs (NPEO and OPEO) reduced to 100 mg/kg from 250 mg/kg

1B. Anti-microbials and Biocides

1. Test method for O-phenylphenol ISO 22992-1 removed
2. Test method for Permethrin added. EN ISO 15913:2003 or EPA 8081/EPA 8151A or BVL L 00.00-34:2010-09 , added instead of general explanation and test method description
3. Triclosan, general analysis testing methodology removed (solvent extraction LCMS, DAD)

1C. Chlorinated Paraffins

1. Test method ISO 22818:2021 assigned to textile chemicals. An additional method ISO 18219-1:2021 provided for leather chemicals

1D. Chlorobenzenes and Chlorotoluenes

1. Individual list of chlorobenzenes and chlorotoluenes with respective CAS numbers added
2. Limit value for 1,2-Dichlorobenzene reduced to 20 mg/kg from 500 mg/kg
3. Limit value for sum of all isomers for chlorobenzenes and chlorotoluenes (except 1,2-Dichlorobenzene) is reduced to 20 mg/kg from 500 mg/kg

1E. Chlorophenols

1. Sum of mono, di and trichlorophenols changed from 50 mg/kg to 25 mg/kg except for leather formulations where the limit is still 50 mg/kg

1F. Dyes-Allergenic Disperse Dyes

No change

1G. Dyes-Carcinogenic or Equivalent concern

1. Solvent Green 1, acetate salt is added newly to the list of dyes

1H. Flame Retardants

1. Rearranged the V3.1 listed substances into three chemical sub-groups of inorganic flame retardants, organophosphorus based flame retardants and organic halogenated flame retardants
2. The V3.1 stance on the restriction of the use of any halogenated flame retardants remains, now updated: Detection of total halogen screening test with 1000 mg/kg limit value to confirm the presence of any halogen in these formulations
3. Clarification on inorganic flame retardants by total boron content by ICP-OES
4. Sodium borohydride separated from the perboric acid sodium salt, due to it not being grouped correctly before
5. Limit values for certain POP listed flame retardants separated and aligned with regulatory requirements
6. Hexabromocyclododecane (HBCDD) limit value aligned with POP listing of 75 mg/kg
7. Testing method is aligned for halogenated flame retardants

1I. Glycols/Glycol Ethers/ Glycol Esters

1. 2-Methoxypropanol limit value for leather formulations made applicable at 2500 mg/kg.
2. 2-Methoxypropyl acetate limit value for leather formulations reduced to 50 mg/kg with exception for leather finishing formulations

1J. Halogenated solvents

1. Benzyl chloride test method added for laboratories to use to derive internal test methods
2. Other solvents general test method conditions such as GC/MS headspace for 45 minutes at 120°C added
3. No change in the limit values

1K. Organic Solvents

1. Cresols the sum of all isomers limit values reduced to 100 mg/kg (except for biocide formatuions for leather where the limit value is still 500 mg/kg)
2. Limit value of DMAC reduced to 500 mg/kg but the EC* status remains
3. Limit value of DMFa reduced to 500 mg/kg but the EC* status remains
4. Limit value of NEP reduced to 500 mg/kg but the EC* status remains
5. Limit value of NMP reduced to 500 mg/kg but the EC* status remains
6. Test methods for organic solvents updated

1L. Organotin compounds

1. Stance to restrict the intentional use of ANY organotin compounds remains. To support certain CAS numbers added for clarity purposes only
2. Clarification on testing of Tetraethyl tin added

1M Other Miscellaneous Chemicals

1. AEEA test method incorporated
2. Clarity on determination of Zinc borate provided
3. Test method for D4,D5 and D6 modified
4. OBSH, used as a blowing agent, added
5. Test method added to quinoline determination, can be used to develop test method by labs
6. Dicumyl peroxide added as a new substance. As well as the test method and applicability for polymer (R,F,A). Applicability only at limit value of 1000 mg/kg
7. Triphenyl phosphate added as a new substance. As well as the test method and limit value of 1000 mg/kg
8. 1,4-Dioxane added as a new substance. As well as the test method and limit value of 1000 mg/kg
9. Styrene added as a new substance. As well as the test method and limit value of 1000 mg/kg

1N. Perfluorinated and Polyfluorinated Chemicals (PFAS)

1. Clarification on PFAS definition included. ZDHC acknowledges OECD (2021) definition of PFASs.
2. For PFAS targeted analysis (where required) aligned with AFIRM V11 list of PFASs
3. Total Fluorine test for screening provided with test methods
4. Targetted PFAS analysis test method using alkaline hydrolysis (EN 17681-1:2025) acknowledged as the PFAS testing method.
5. The limit values aligned with French Decree (as of 2026) with individual PFAS limit set as 25 ug/kg and sum of all PFAS at 250 ug/kg (Total fluorine content of 50 mg/kg as threshold above which the delcaration and source of Fluorine is mandatory to be disclosed to solution provider)
6. Risk based evaluation of formulation required to be performed by solution provider and certifier.
7. ZDHC MRSL Level 1 testing requirement is mandatory for PFAS

1O. Phthalates – including all other esters of ortho-phthalic acid

1. Test method updated
2. Four phthalates are added for clarity purposes only, all esters of ortho-phthalic acids are still banned from usage

1P. Polycyclic Aromatic Hydrocarbons (PAHs)

1. Test method updated
2. Naphthalene exemption is removed and now it is included in Sum of all PAHs.

1Q. Restricted Aromatic Amines (Cleavable from Azo-colourants)

1. Test method updated

1R. Total Metals

1. Chemical group name changed to total metals from total heavy metals
2. Test method updated
- 3 New metals introduced (Zinc, Iron, Manganese) to align with ETAD metals and limit value

1S. UV Absorbers

1. Limit value for UV-328 reduced to 100 mg/kg from 1000 mg/kg
2. Two new UV absorbers added to the list (UV-326 and UV329)
3. Test method updated

1T. Bisphenols

1. The new chemical group introduced due to increasing list of similar class of substances
2. Four new Bisphenols (Bisphenol F, Bisphenol AF, Bisphenol S and Bisphenol B) introduced
3. Bisphenol AF classified as PFAS and the corresponding individual PFAS limit value applied
4. Test method updated

1U Aldehydes and Ketones

1. New chemical group introduced to accomodate new similar substances
2. Formaldehyde added as the first substance in the list as a new substance
3. Limit values added as 1000mg/kg for formaldehyde based formulations and 250 mg/kg for non-formaldehyde based formulations
4. Test method updated

1V Polychlorinated biphenyls (PCBs)

1. New chemical group introduced to accomodate similar substances
2. PCBs are added as a new substance
3. Limit value of 10 mg/kg for all formulations with derogation to organic dyes and pigment (25 mg/kg) and silicon based formuatlions (with 50 mg/kg) introduced
4. Test method updated

1W Oxidising and Reducing Agents

1. New chemical group introduced to accomodate similar chemistries
2. Potassium permangnates and other permangnate salts added
3. New limit value of 1000mg/kg introduced
4. Testing method introduced

Chapter 2 - ZDHC MRSL Candidate List

1. CI Disperse Orange 61 introduced in the Candidate List with intention to put in the main list in ZDHC MRSL V5.0
2. Vinyl Chloride as free monomer intended to introduce in the ZDHC MRSL V5.0
3. Drometrizole added into the ZDHC MRSL Candidate List

Chapter 3 - ZDHC MRSL Archived List

1. Silica (particles of respirable size) are moved to Archived List
2. Carbon tetrachloride added to the Archived List