

NA-KD

RESTRICTED SUBSTANCES LIST

Ver. 3 - 2021/06

INTRODUCTION

At NA-KD (Nakdcom One World AB), we aim to maintain the highest ethical standards and business conduct, and we want our customers to be aware of the products we distribute and that the procure is fairly and ethically manufactured. The NA-KD Restricted Substances List (RSL), elaborates on these standards and details the minimum requirements and NA-KD monitoring procedures regarding the use of chemicals in NA-KD products.

A joint effort

The chemical requirements stated in this RSL apply for all NA-KD products and materials, including fabrics, garments, trims, accessories, footwear, beauty products, hard goods, and packaging, and all NA-KD orders must comply with the minimum standards. NA-KD does not accept any of its products to contain restricted or prohibited substances, in accordance with local and international regulations.

At NA-KD, we believe in cooperation with our suppliers and other business partners to achieve sustainable solutions, and in meeting our standards in terms of environmental sustainability, working conditions and consumer safety.

This entails high expectations on our suppliers to comply with the standard and requires a continuous and functioning communication between NA-KD and our suppliers, and between our suppliers and their subcontractors.

Suppliers are responsible for assuring compliance with the NA-KD RSL, and for ensuring that their subcontractors, including accessory suppliers, dyeing mills, printing mills, tanneries, chemical suppliers, and other relevant business partners, are informed of the RSL requirements and have access to latest edition of the RSL.

Suppliers must also keep record of the chemical substances used in the manufacturing of NA-KD products and be able to declare that all products and materials comply with the restrictions detailed in this document. Documentation to support the above must be provided by the supplier, including lists detailing all chemical products used and Material Safety Data Sheets (MSDS).

Information provided in this document is valid as of June 2021. Actualisations and modifications will be notified and will be included in this list as of such date. For any questions or further information, please contact quality@na-kd.com.

1. MONITORING AND ENFORCEMENT

The NA-KD monitoring and enforcement procedures consists of several components, which are detailed below.

MONITORING PROCEDURES

NA-KD carries out random and planned testing for restricted substances through an independent laboratory, to monitor and ensure compliance with the NA-KD Restricted Substances List.

Furthermore, NA-KD requires all suppliers, manufacturers, and other business partners to provide complete and accurate information on the use of chemical substances for all products and materials. Suppliers must also provide relevant and verifiable documentation upon request, to support that all products comply with the NA-KD RSL.

NA-KD also reserves the right to make unannounced visits to all units producing goods or services for the company, at any time. Likewise, the company reserves the right to appoint an independent third party of its choice to conduct audits to evaluate the compliance with the RSL. During inspections and audits, NA-KD requires unrestricted access to all areas of the premises, to all documents and to all workers for conducting interviews. NA-KD also demands the right to provide workers with the company's contact details.

CORRECTIVE ACTION

Strict compliance with the NA-KD RSL requirements is a compulsory condition for all orders placed by NA-KD. Should an order fail to comply with the requirements in this document, or should any inspection or audit detect violations of the RSL, NA-KD reserves the right to cancel the order and take additional corrective action if deemed necessary.

Any supply of non-compliant goods is a violation of the contractual agreement between NA-KD and the supplier and constitutes a material defect. NA-KD therefore reserves the right to claim compensation for any damages or financial losses we may suffer due to non-compliance. Suppliers should also note that they will be charged with any testing costs associated with such non-compliances.

Generally, the supplier will be given the opportunity to propose and implement a corrective action plan. NA-KD shall in such cases follow up the implementation of the plan and verify that violations have been remedied. A supplier failing to undertake sustainable improvements within the stipulated time frame would seriously damage its relationship with the company.

2. INTERNATIONAL AND NATIONAL REGULATIONS

The NA-KD RSL conforms to the strictest legal requirements worldwide, and is based mainly on EU regulations and directives, but also on national laws. Should the different legislations be similar in their meaning, the highest standard should always be prioritised.

The RSL is continuously updated to comply with the legally restricted substances, and restricted substances under investigation, in accordance with the European Chemicals Agency (ECHA).

Limits and test methods in the NA-KD RSL is also updated to conform to the standards of the AFIRM (the Apparel & Footwear International RSL Management Working Group) RSL.

NA-KD supports industry-wide sustainability efforts to minimise or eliminate the use of hazardous substances in the textile and apparel industry. The goal is to work with all NA-KD suppliers to ensure that NA-KD products comply with the global standards, that the targeted substances detailed in the RSL are reduced or eliminated, and to support sustainable innovation in the longer term.

In response to the recent research done on PVC, NA-KD aims to switch to safer and more sustainable alternatives. We are aware of the challenges that comes with immediate banning of PVC, and we therefore aim to restrict and phase out PVC and eventually replace it with safer substances, such as EVA.

INTERNATIONAL AND EU REGULATIONS AND PROGRAMMES

The NA-KD RSL is based on international regulations and programmes regarding the use of chemicals in textile, footwear, accessories, beauty products, hard goods, trims, packaging, etc., which are relevant for NA-KD orders:

AFIRM RSL	AFIRM Restricted Substances List (V 03) 2018 http://www.afirm-group.com/wp-content/uploads/2018/05/2018_AFIRM_RSL_EN.pdf
BPR	Biocidal Products Regulation, (EU) 528/201
ECHA	European Chemicals Agency http://echa.europa.eu/home_en.asp

ECHA SVHC-List	Substances of Very High Concern <u>http://echa.europa.eu/chem_data/candidate_list_table_en.asp</u>
EU POPs	Persistent Organic Pollutants Regulation
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (EG nr 1907/2006) EC Regulation 1223/2009 on cosmetics
RoHS	Restriction of Hazardous Substances Directive of Electrical devices
Battery Directive	Restriction of chemicals and producer's responsibility of batteries
Food Contact Regulation	<u>https://ec.europa.eu/food/food/chemical-safety/food-contact-materials_en</u> <u>https://ec.europa.eu/environment/topics/waste-and-recycling/rohs-directive_en</u>

NATIONAL REGULATIONS

The aim is for the NA-KD RSL to be consistent with national or country-specific regulations or legislation, in addition to EU and international regulations. The following regulations should therefore be considered by all suppliers in the production of NA-KD products and merchandise:

EUROPEAN UNION:

Denmark	Denmark Regulation
Norway	Norwegian Product Regulations

Germany	GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances)
	Germany Consumer Goods Ordinance
	LFGB: Lebensmittel- und Futtermittelgesetzbuch (Food, Consumer Goods and Feed Code)
Finland	Finland Regulation
Netherlands	Netherlands Regulation
Sweden	Sweden Regulation
Switzerland	Swiss Chem RRV
	Swiss EDI Ordinance

ASIA AND OCEANIA:

Australia	ACCC: Australian Competition and Consumer Commission
	Australian Market Requirement
	POPs: Persistent Organic Pollutants convention
China	Chinese National General Safety Technical Code
	GB18401
Japan	Japanese Industrial Standards
New Zealand	NZ Market Requirement

NORTH AND CENTRAL AMERICA:

US	ASTM: American Society for Testing and Materials, Consumer Product Safety Commission California Proposition 65 (Prop 65) CPSC: US Consumer Product Safety Commission CPSIA: US Consumer Product Safety Improvement Act EPA: US Environmental Protection Agency FD&C ACT: Federal Food, Drug, and Cosmetic Act
Canada	CPSA: Canadian Consumer Product Safety Act
Mexico	Official Mexican Standards, The Federal Consumer Protection Law of Mexico

3. RESTRICTED SUBSTANCE LIST

RSL Overview

- ▶ Alkylphenols (APs) & Alkylphenoethoxylates (APEOs)
- ▶ AZO-amines
- ▶ Bisphenol-A (BPA)
- ▶ Chlorinated Paraffins (CPs)
- ▶ Chlorophenols
- ▶ Chlororganic carriers
- ▶ Dimethylfumarate
- ▶ Disperse Dyes
- ▶ Dyes - Acid, Basic, Direct, Other

- ▶ Flame retardants
- ▶ Formaldehyde
- ▶ Metals
- ▶ Monomers
- ▶ N-Nitrosamines
- ▶ Organotin Compounds
- ▶ Ortho-phenylphenol
- ▶ Ozone-depleting Substances
- ▶ Perfluorinated & Polyfluorinated Chemicals (PFAS)
- ▶ Pesticides, Agricultural and Residual
- ▶ pH-Acidic & Alkaline Substances
- ▶ Phthalates
- ▶ Polycyclic Aromatic Hydrocarbons (PAHs)
- ▶ Polyvinyl Chloride (PVC)
- ▶ Silicones
- ▶ Solvents / Residuals
- ▶ Volatile Organic Compounds (VOCs)
- ▶ Requirements for Cosmetic Products

ABBREVIATIONS AND DEFINITIONS

ABBREVIATION	DEFINITION
CADS	Cooperation for Assuring Defined Standards for Shoe- and Leather Goods Production e.V.
CAS no.	Chemical Abstract Service Number
CEN	Comité Européen de Normalisation (CEN)
CPSC	Standard Operating Procedure edited by the Consumer Product Safety Commission
DIN	Standard edited by the Deutsches Institut für Normung (German Institute for Standardization)
EN	European Standard edited by the European Committee for Standardization
EPA	Environmental Protection Agency
ISO	International Standard edited by the International Organization for Standardization
LC-MS	Liquid chromatography-mass spectrometry (analytical chemistry technique that combines the physical separation capabilities of liquid chromatography with the mass analysis capabilities of mass spectrometry).
LFGB	Lebensmittel-, Bedarfsgegenstände-, und Futtermittelgesetzbuch (Food, Consumer Goods and Feed Code)
GC	Gaschromatography (technique for the qualitative or quantitative separation of the components of mixtures of compounds; characterised by the use of the mobile phase gas moving relative to a stationary phase, liquid or solid).
JIS	Japanese Industry Standards
mg/kg	milligram per kilogram (unit describing concentrations of chemical substances, see also ppm)
MS	Mass Spectrometry (analytical technique that measures the mass/charge ratio of the ions formed when a molecule or atom is ionised, vaporised and introduced into a vacuum)
NA-KD Limit	The maximum allowable concentration in a component, by NA-KD standards
ppm / ppb	Parts Per Million / Parts Per Billion (units describing concentrations of chemical substances)
Reporting Limit	The value above which test results should be reported
GC-MS	See GC respectively MS
µg	microgram

MEASUREMENT UNITS AND CONVERSION

The NA-KD RSL uses the European mg/kg as a standard measurement unit of chemicals or contaminate concentration. The measurement is converted 1:1 to ppm (parts per million): 1 mg/kg = 1 ppm

ALKYLPHENOLS (APS) & ALKYLPHENOLETHOXYLATES

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Nonylphenol (NP), mixed isomer Octylphenol (OP), mixed isomers	Various	APs can be used as antioxidants to stabilise or protect polymers, and as intermediaries in the production of APEOs.	EN ISO 21084:2019 (textile), (AP)	Total of NP/OP: 100 mg/kg	Sum of NP/OP: 10 mg/kg
Nonylphenol Ethoxylates (NPEOs) Octylphenol Ethoxylates (OPEOs)	Various	APEOs can be found in, or used as, detergents, softeners, emulsifying or dispersing agents for dyes and prints, impregnating agents, scouring agents, wetting agents, spinning oils, de-gumming for silk production, dyes and pigment preparations, down or feather fillings and polyester padding, etc.	Textiles: EN ISO 18254-1:2016, 2:2019 (APEO) Leather: EN ISO 18218-1:2015 (direct method) EN ISO 18218-2:2019 (APEO indirect method)	Total of NPEO/OPEO: 100 mg/kg	Sum of NPEO/OPEO: 20 mg/kg

AZO-AMINES

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
4-Aminobiphenyl	92-67-1	<p>Azo dyes and pigments are synthetic organic dyes that incorporate one or more azo groups containing nitrogen (-N=N-).</p> <p>There are thousands of azo dyes and pigments, and more than half of all commercial dyes belong to this category. Azo dyes (including those based on benzidine) may release carcinogenic arylamines, some of which are regulated and should not be used for dyeing of textiles and leather.</p>	<p>Textiles: EN ISO 14362-1:2017 and EN ISO 14362-3:2017</p> <p>Leather: EN ISO 17234-1:2020</p>	20 mg/kg each	5 mg/kg each
Benzidine	92-87-5				
4-Chlor-o-toluidine	95-69-2				
2-Naphthylamine	91-59-8				
o-Aminoazotoluene	97-56-3				
2-Amino-4-nitrotoluene	99-55-8				
p-Chloraniline	106-47-8				
2,4-Diaminoanisole	615-05-4				
4,4'-Diaminodiphenylmethane	101-77-9				
3,3'-Dichlorobenzidine	91-94-1				
3,3'-Dimethoxybenzidine	119-90-4				
3,3'-Dimethylbenzidine	119-93-7				
3,3'-dimethyl-4,4'-diaminodiphenylmethane	838-88-0				
p-Cresidine	120-71-8				
4,4'-Methylen-bis(2-chloraniline)	101-14-4				
4,4'-Oxydianiline	101-80-41				
4,4'-Thiodianiline	139-65-				
o-Toluidine	95-53-4				
2,4-Toluyldiamine	95-80-7				
2,4,5-Trimethylaniline	137-17-7				
2,4 Xylidine	95-68-1				
2,6 Xylidine	87-62-7				
2-Methoxyaniline(= o-Anisidine)	90-04-0				
p-Aminoazobenzene	60-09-3		p-Aminoazobenzene:		
4-chloro-o-toluidinium chloride	3165-93-3		Textiles: EN ISO 14362-3:2017		
2-Naphthylammoniumacetate	553-00-4		Leather: EN ISO 17234-2:2011		
2,4,5-trimethylaniline hydrochloride	21436-97-5				
4-methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisole sulphate	39156-41-7				
Quinoline	91-22-5	Precursor to quinoline dyes	DIN 54231-2005 (inhouse method)	50 mg/kg	10 mg/kg

BISPHENOL-A (BPA)

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Bisphenol-A (BPA)	80-05-7	<p>Bisphenol A is commonly used in plastic and synthetic materials (including PU and PVC).</p> <p>It may be used in coating and printing, and in the production of polycarbonate plastics and epoxy resin.</p>	CEN/ TS 13130-13:2005	1 mg/kg	1 mg/kg

CHLORINATED PARAFFINS (CPS)

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Short-chain chlorinated Paraffins (SCCP) (C10-C13)	85535-84-8	Chlorinated Paraffin may be used as flame retardants, softeners fatliquoring agents in leather, or as plasticisers in plastics, rubbers, inks, paints, adhesives, and coatings.	EN ISO 22818:2021 (textile)	1,000 mg/kg	100 mg/kg
Medium-chain chlorinated Paraffins (MCCP) (C14-C17)	85535-84-9		EN ISO 18219-1,-2:2021 (leather)	1,000 mg/kg	100 mg/kg

CHLOROPHENOLS

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
2,3,4-Trichlorophenol	15950-66-0	Chlorophenols are polychlorinated compounds mainly used as pesticides, preservatives, or disinfectants, for example to kill insects and prevent mold in cotton production and in transporting or storing fabrics. Chlorophenols are toxic to human and aquatic life, and have been found toxic when inhaled, ingested, or absorbed through the skin. Short term exposure may lead to damage of central nervous system and long-term exposure can cause reproductive effect, liver and kidney damage, and cancer.	EN ISO 17070:2015 (leather)	0.5 mg/kg each	0.5 mg/kg each
2,3,5-Trichlorophenol	933-78-8				
2,3,6-Trichlorophenol	933-75-5		CEN/TR 14823:2003 (wood)		
2,4,5-Trichlorophenol	95-95-4				
2,4,6-Trichlorophenol	88-06-2		EN ISO 15320:2011 (pulp and paper)		
3,4,5-Trichlorophenol	609-19-8				
2,3,4,5-Tetrachlorophenol (TeCP)	4901-51-3				
2,3,4,6-Tetrachlorophenol (TeCP)	58-90-2				
2,3,5,6-Tetrachlorophenol (TeCP)	935-95-5				
Pentachlorophenol (PCP)	87-86-5				

CHLORORGANIC CARRIERS

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
2-Chlorotoluene	95-49-8	Chloroorganic carriers (e.g. chlorobenzenes and chlorotoluenes) are a group of molecules that can be used as carriers (transporting dyes into a fibres) in the process of dyeing wool/polyester fibres or polyester. They may also be used as solvents.	EN 17137:2018	Total: 1 mg/kg	0.2 mg/kg
3-Chlorotoluene	108-41-8				
4-Chlorotoluene	106-43-4				
2,3-Dichlorotoluene	32768-54-0				
2,4-Dichlorotoluene	95-73-8				
2,5-Dichlorotoluene	19398-61-9				
2,6-Dichlorotoluene	118-69-4				
3,4-Dichlorotoluene	95-75-0				
2,3,6-Trichlorotoluene	2077-46-5				
2,4,5-Trichlorotoluene	6639-30-1				
2,3,4,6-Tetrachlorotoluene	875-40-1				
2,3,5,6-Tetrachlorotoluene	1006-31-1				
Pentachlorotoluene	0877-11-2				
1,3-Dichlorobenzene	541-73-1				
1,4-Dichlorobenzene	106-46-7				
1,2,3-Trichlorobenzene	87-61-6				
1,2,4-Trichlorobenzene	120-82-1				
1,3,5-Trichlorobenzene	108-70-3				
1,2,3,4-Tetrachlorobenzene	634-66-2				
1,2,3,5-Tetrachlorobenzene	634-90-2				
1,2,4,5-Tetrachlorobenzene	95-94-3				
Pentachlorobenzene	608-93-5				
Hexachlorobenzene	118-74-1				
α,α,α,4-tetrachlorotoluene; p-chlorobenzotrichloride	5216-25-1				
α,α,α-trichlorotoluene; benzotrichloride	1998-07-07				
α-chlorotoluene; benzyl chloride	100-44-7				
1,2-Dichlorobenzene	95-50-1			10 mg/kg	1 mg/kg

DIMETHYLFUMARATE

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Dimethylfumarate (DMFu)	624-49-7	<p>DMFu is an ester of Fumaric acid, used as an anti-mould agent to prevent mould fungus in consumer products and packaging. Overtime chemical evaporates and penetrates the product. Consumers exposed to DMFu have experienced problems like dermatitis or allergies, with symptoms such as skin itching, irritation redness, burns, and respiratory difficulties.</p> <p>DMFu can also be found in silica gel packets, leather, natural materials (e.g. straw), etc.</p>	<p>EN 17130:2019 (textile)</p> <p>CEN ISO/TS 16186:2012 (footwear)</p>	0.1 mg/kg	0.05 mg/kg

DISPERSE DYES

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
C.I. Disperse Blue 1	2475-45-8	<p>Disperse dyes are water-insoluble colorants mainly used for colouring synthetic fibres (including acetate, polyester, and polyamide).</p> <p>Some disperse dyes may cause allergic reactions, in an estimated 5% of the population.</p>	EN ISO 16373-2:2015 (textile)	50 mg/kg each	15 mg/kg
C.I. Disperse Blue 3	2475-46-9				
C.I. Disperse Blue 7	3179-90-6				
C.I. Disperse Blue 26	3860-63-7				
C.I. Disperse Blue 35	12222-75-2				
C.I. Disperse Blue 102	69766-76-6				
C.I. Disperse Blue 106	12223-01-07				
C.I. Disperse Blue 124	61951-51-7				
C.I. Disperse Brown 1	23355-64-8				
C.I. Disperse Orange 1	2581-69-3				
C.I. Disperse Orange 3	730-40-5				
C.I. Disperse Orange 11	82-28-0				
C.I. Disperse Orange 37/76/59	12223-33-5 / 13301-61-6 / 51811-42-8				
C.I. Disperse Orange 149	85136-74-9				
C.I. Disperse Red 1	2872-52-8				
C.I. Disperse Red 11	2872-48-2				
C.I. Disperse Red 17	3179-89-3				
C.I. Disperse Red 151	61968-47-6				
C.I. Disperse Yellow 1	119-15-3				
C.I. Disperse Yellow 3	2832-40-8				
C.I. Disperse Yellow 7	6300-37-4				
C.I. Disperse Yellow 9	6373-73-5				
C.I. Disperse Yellow 23	6250-23-3				
C.I. Disperse Yellow 39	12236-29-2				
C.I. Disperse Yellow 49	54824-37-2				
C.I. Disperse Yellow 56	54077-16-6				

DYES- ACID, BASIC, DIRECT, OTHER

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
C.I. Acid Red 26	3761-53-3	Acid, Basic, and Direct dyes are fibre reactive dyes with different characteristics, which have in common that they react with functional groups in the fibres.	EN ISO 16373-2:2015 (textile)	50 mg/kg each	15 mg/kg
C.I. Basic Red 9	569-61-9				
C.I. Basic Green 4	569-64-2 / 2437-29-8 / 10309-95-2				
C.I. Basic Violet 3	548-62-9				
C.I. Basic Violet 14	632-99-5				
C.I. Basic Blue 26	2580-56-5				
C.I. Direct Black 38	1937-37-7				
C.I. Direct Blue 6	2602-46-2				
C.I. Direct Red 28	573-58-0				
C.I. Direct Brown 95	16071-86-6				
4-Dimethylaminoazobenzene (Solvent Yellow 2)	60-11-7				
C.I. Solvent Blue 4	6786-83-0				
4,4'-bis(dimethylamino)-4''-(methylamino) trityl alcohol	561-41-1				
Michler's base	101-61-1				
Michlers's ketone	90-94-8				
Acid red 114	6459-94-5				
Direct Blue	2429-74-5				
Component 1: C ₃₉ H ₂₃ ClCrN ₇ O ₁₂ S ₂ .2Na (Navy blue)	118685-33-9	Navy blue colorants are regulated and may not be used for dyeing of textiles. (Index 611-070-00-2)			
Component 2: C ₄₆ H ₃₀ CrN ₁₀ O ₂₀ S ₂ .3Na (Navy blue)	Not allocated				

FLAME RETARDANTS

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Pentabromodiphenyl ether (PentaBDE)	32534-81-9	Flame-retardant chemicals have been used, although rarely, to meet flammability requirements in apparel and footwear, and should no longer be used in such products.	EN ISO 17881-1:2016	DecaBDE: 10 mg/kg	5 mg/kg each
Octabromodiphenyl ether (OctaBDE)	32536-52-0			Others: Not detected.	
Decabromodiphenyl ether (DecaBDE)	1163-19-5			(PBB/TRIS/TEPA: 5 mg/kg, PentaBDE/ TetraBDE /HexaBDE/ HeptaBDE: 10 mg/ kg, HBCDD: 10 mg/ kg, OctaBDE: 10 mg/ kg, Others: 5 mg/kg)	
Tetrabromobisphenol A (TBBP A)	79-94-7				
Polybromobiphenyls (PBB)	59536-65-1				
Hexabromocyclododecane (HBCDD)	3194-55-6				
2,2-bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0				
Tris(1,3-dichloro-isopropyl) phosphate (TDCPP)	13674-87-8		EN ISO 17881-2:2016		
Trixylyl phosphate (TXP)	25155-23-1				
Tris(2,3-dibromopropyl) phosphate (TRIS)	126-72-7				
Tris(1-aziridinyl) phosphine oxide) (TEPA)	545-55-1				
Tris(2-chloroethyl) phosphate (TCEP)	115-96-8				
Bis(2,3-dibromopropyl) phosphate (BDBPP)	5412-25-9				

FORMALDEHYDE

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Formaldehyde	50-00-0	<p>Formaldehyde may be used as an anti-creasing and anti-shrinking agent in textiles, or in polymeric resins.</p> <p>It can be found in plastic, synthetic materials (inc. PU and PVC), natural fibres, synthetic fibres, coating/printing, leather.</p> <p>Formaldehyde is a toxic, allergenic, and carcinogenic substance. May irritate eyes and cause headaches, throat burning or breathing difficulties.</p>	<p>Textiles, wood, and paper: JIS L 1041-1983 A (Japan Law 112) or EN ISO 14184-1,-2:2011</p> <p>Leather: EN ISO 17226-2: 2019 with EN ISO 17226-1: 2021 confirmation method in case of interferences confirmation method in case of interferences.</p> <p>EN ISO 17226-3:2011 (formaldehyde emissions from leather)</p>	75 mg/kg	16 mg/kg

METALS

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Antimony (Sb)	7440-36-0	Antimony can be found in, or used as, a catalyst in polymerisation of alloys, fixing agents, flame retardants, pigments, and polyester.	<p>Textiles: EN ISO 16711-2: 2015</p> <p>Leather: EN ISO 17072-1: 2019</p>	Extractable: 30 mg/kg	3 mg/kg
Arsenic (As)	7440-38-2	Arsenic and its compounds can be used in defoliants, pesticides, and preservatives, for cotton, inks, paints, plastics, trims and synthetic fibres.	<p>Extractable: Textiles: EN 16711-2: 2015</p> <p>Leather: EN ISO 17072-1: 2019</p> <p>Total: Textiles: EN 16711-1: 2015 Leather: EN ISO 17072-2: 2019</p>	<p>Extractable: 0.2 mg/kg</p> <p>Total: 100 mg/kg</p>	<p>Extractable: 0.01 mg/kg</p> <p>Total: 10 mg/kg</p>

Barium (Ba)	7440-39-3	Barium and its compounds can be found in pigments for inks, surface coatings and plastics, and in leather tanning, dyeing, filler in plastics, mordant and textile finish.	Textiles: EN 16711-2: 2015 Leather: EN ISO 17072-1:20172019	Extractable: 1,000 mg/kg	Extractable: 100 mg/kg
Cadmium (Cd)	7440-43-9	Cadmium is a naturally occurring and abundant metal. Cadmium compounds are mainly used in biocides, fertilisers, and paints, as a colorant (especially in green, orange, red and yellow), and as a stabiliser in plastics, pigments, and coatings. For example, they can be used in synthetic fibres (including PU, PVC) coating/printing, and plastic-coated trims (such as buttons, buckles, zippers, etc).	Extractable: All materials except leather: EN 16711-2: 2015 Leather: EN ISO 17072-1: 2019 Total: All materials except leather: EN 16711-1: 2015 Leather: EN ISO 17072-2: 2019	Extractable: 0.1 mg/kg Total: 40 mg/kg	Extractable: 0.05 mg/kg Total: 5 mg/kg
Chromium (Cr)	7440-47-3	Chromium compounds can be used in dyes for silk, wool and polyamide and leather tanning, and as colour fastness after-treatments, dye-fixing agents, dyeing additives, etc.	Textiles: EN 16711-2: 2015 Leather: EN ISO 17072-1: 2019	Extractable for textiles: 2 mg/kg	Extractable: 0.5 mg/kg
Chromium VI	18540-29-9	Chromium VI is typically associated with leather tanning but may also be used in the dyeing of wool.	Textiles: EN 16711-2: 2015 with EN ISO 17075-1:2017 if Cr is detected Leather: EN ISO 17075-1:2017 and EN ISO 17075-2:2017 for confirmation in case the extract causes interference Conditions for leather ageing: 24 hours, 80 degrees C, maximum 5% relative humidity, no ventilation. Ageing test is used at brand discretion.	Leather: 3 mg/kg Knitted textiles: 1 mg/kg	Leather: 3 mg/kg Knitted textiles: 0.5 mg/kg
Cobalt (Co)	7440-48-4	Cobalt and its compounds may be used in alloys, dyestuff, pigments, and the production of plastic buttons	Textiles: EN 16711-2: 2015 Leather: EN ISO 17072-1: 2019	Extractable: 4 mg/kg	Extractable: 0.5 mg/kg

Copper (Cu)	7440-50-8	Copper and its compounds may be used as an antimicrobial agent in textiles and can be found in alloys and pigments.	Textiles: EN 16711-2: 2015 Leather: EN ISO 17072-1: 2019	Extractable: 50 mg/kg	5.0 mg/kg
Lead (Pb)	7439-92-1	May be associated with inks, paints, pigments, plastics, surface coatings and lamination on fabric. May be found in painted buttons, snaps, zippers, etc.	Textiles: EN 16711-2: 2015 Leather: EN ISO 17072-1: 2019 Total: Non-metal: CPSC-CH-E1002-08.3 Metal: CPSC-CH-E1001-08.3 Lead in paint and surface coating: CPSIA Section 101 16 CFR 1303	Extractable: 1 mg/kg Total: 90 mg/kg Coating on textile materials: 10 mg/kg Lead in other surface coating: 90 mg/kg	Extractable: 0.1 mg/kg Total: 10 mg/kg
Mercury (Hg)	7439-97-6	Mercury can be used as a component in dyestuffs and as a catalyst in the dyeing process. Mercury compounds may also be found as contaminants in caustic soda (NaOH) and in pesticides.	Extractable: Textiles: EN 16711-2: 2015 Leather: EN ISO 17072-1: 2019 Total: Textiles, plastics, metal: EN 16711-1: 2015 Leather: EN ISO 17072-2: 2019	Extractable: 0.02 mg/kg Total: 0.5 mg/kg	Extractable: 0.02 mg/kg Total: 0.1 mg/kg
Nickel (Ni)	7440-02-0	Nickel plated earrings, necklaces, bracelets and chains, anklets, finger rings, wrist-watch cases, watch straps and tighteners.	Extractable: Textiles: EN 16711-2: 2015 Leather: EN ISO 17072-1: 2019 Release: EN 12472: 2020 and EN EN: 1811 + A1:2015	Extractable: 1 mg/kg	0.1 mg/kg

Nickel (Ni) Release	7440-02-2	Direct, long-term skin contact may lead to allergic reactions. Essential for nickel plated earrings, necklaces, bracelets and chains, anklets, finger rings, wrist-watch cases, watch straps and tighteners.	Metal parts: EN: 1811 + A1:2015 Eyewear frames: EN 16128:2015	For metal items coming into direct and prolonged contact with the skin: 0.5 µg/cm ² /week Pierced part: 0.2 µg/cm ² /week Eyewear frames: 0.5 µg/cm ² /week	0.10 µg/cm ² /week
Selenium (Se)	7782-49-2	Selenium is mainly used in glassmaking and for the production of pigments.	Textiles: EN 16711-2: 2015 Leather: EN ISO 17072-1: 2019	500 mg/kg	50 mg/kg
Tin organic analysis (all materials)	7440-31-5	Tin can be found in adhesives, coatings, metal items and polymers.	Textiles, plastics, polymers: EN ISO 22744-1,-2:2020 (textile) CEN ISO/TS 16179:2012 (footwear)	Tin 1 mg/kg If Tin > 0.1 mg/kg, organotin analysis required	0.1 mg/kg

MONOMERS

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Styrene	100-42-5	Styrene is a precursor for polymerisation that can be found in various styrene-copolymers, e.g. in plastic buttons.	GC/MS Headspace 120 degrees C for 45 minutes or Extraction in Methanol GC/MS, sonication at 60 degrees C for 60 minutes	100 mg/kg	50 mg/kg
Vinyl Chloride	75-01-4	Vinyl Chloride is a precursor for polymerisation that can be found in various PVC materials (including coatings, flip flops, synthetic leather and prints).	EN ISO 6401:2008	1 mg/kg	1 mg/kg

N-NITROSAMINES

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
N-nitrosodimethylamine (NDMA)	62-75-9	N-Nitrosamines can be found in rubber, plastic, and synthetic materials (including PU and PVC).	GB/T 24153-2009: determination using GC/MS, with LC/MS/MS verification if positive.	0.5 mg/kg each	0.5 mg/kg each
N-nitrosodiethylamine (NDEA)	55-18-5				
N-nitrosodipropylamine (NDPA)	621-64-7	Associated with rubber and latex products, chemical intermediaries, and finished cosmetics.	Alternatively, LC/MS/MS may be performed on its own. EN ISO 19577:2019		
N-nitrosodibutylamine (NDBA)	924-16-3				
N-nitrosopiperidine (NPIP)	100-75-4				
N-nitrosopyrrolidine (NPYR)	930-55-2				
N-nitrosomorpholine (NMOR)	59-89-2				
N-nitroso N-methyl N-phenylamine (NMPPhA)	614-00-6				
N-nitroso N-ethyl N-phenylamine (NEPhA)	612-64-6				

ORGANOTIN COMPOUNDS

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Dibutyltin (DBT)	Various	Organotin Compounds can be used as catalysts in glue and plastic production, and as heat stabilisers in rubber and plastics. Organotins can be found in plastics, synthetic materials (including PU and PVC), natural fibres, synthetic fibres, coating/printing, leather, rubber, inks, paints, metallic glitter, etc.	EN ISO 22744-1,-2:2020 (textile) CEN ISO/	DBT/DOT/ MBT/TCyT/ TMT/TOT/ TPT: 1 mg/kg each	0.1 mg/kg each
Diocetyl tin (DOT)					
Monobutyltin (MBT)			TS 16179:2012 (footwear)		
Tricyclohexyltin (TCyHT)					
Trimethyltin (TMT)					
Triocetyl tin (TOT)					
Tripropyltin (TPT)					
Tributyltin (TBT)					
Triphenyltin (TPhT)		TBT/TPhT: 0.5 mg/ kg each			

ORTHO-PHENYLPHENOL

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Ortho-phenylphenol (OPP)	90-43-7	OPP can be used as a carrier in dyeing processes, or as a preservative in leather.	1 M KOH extraction, 12 to 15 hours at 90 degrees C, derivatisation and analysis § 64 LFGB B 82.02-08 or EN ISO 17070:2015	1.000 mg/kg	100 mg/kg

OZONE-DEPLETING SUBSTANCES

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Various (ref. Regulation (EC) No 1005/2009)	Various	Ozone-depleting substances have been used as a dry-cleaning agent, and as a foaming agent in PU foams. Ozone-depleting substances are prohibited from use	GC/MS headspace 120 degrees C for 45 minutes (May vary)	5 mg/kg each	5 mg/kg each

PERFLUORINATED & POLYFLUORINATED CHEMICALS (PFAS)

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Perfluorooctane Sulfonate (PFOS)	Various	PFOA and PFOS may be found as by-products in oil-, stain- and water-repellent finishes in plastic, synthetic materials (inc. PU and PVC), natural fibers, synthetic fibers, and leather. PFOA can also be used in polymers, e.g. Polytetrafluoroethylene (PTFE).	All materials: EN ISO 23702-1:2018"	PFOS and related substances: 1 µg/m ² "	1 µg/m ² each
Perfluorooctanoic Acid (PFOA) & its esters & salts				PFOA and its esters & salts: 0.025 mg/kg total	0.01 mg/kg
PFOA-related substances				PFOA-related substances: 1mg/kg total	0.1 mg/kg total
PFHxS and related substances				0.025 mg/kg PFHxS related substances: 1 mg/kg	0.01 mg/kg 0.1 mg/kg
PFBS related substances				1000 mg/kg	1 mg/kg

PFAS are prohibited from use on NA-KD products or materials. For the current legal status of PFAS (March 2021), see table 1 below:

LEGAL STATUS OF PFAS (MARCH 2021)

PFAS substances, their salts and related substances	CAS	Abbr.	SVHC	REACH annex XVII	EU POP	Stockholm Convention
Perfluorobutane sulfonate	375-73-5	PFBS	Yes			
Perfluorohexane sulfonate	355-46-4	PFHxS	Yes	Proposed		Proposed
Perfluorohexanoic acid	307-24-4	PFHxA	Proposed	Proposed	Yes	Yes
Perfluorooctane sulfonate	1763-23-1	PFOS				
Perfluorononanoic acid and its sodium ammonium salts	375-95-1 21049-39-8 4149-60-4	PFNA	Yes	Proposed		
Perfluorodecanoic acid its sodium and ammonium salts	335-76-2 3108-42-7 3830-45-3	PFDA	Yes	Proposed		
Pentacosafuoro tridecanoic acid	72629-94-8	PFTTrDA	Yes	Proposed		
Tricosafuoro dodecanoic acid	307-55-1	PFDoA	Yes	Proposed		
Henicosafuoro undecanoic acid	2058-94-8	PFUnA	Yes	Proposed		
Heptacosafuoro tetradecanoic acid	376-06-7	PFTA	Yes	Proposed		
Perfluorooctane acid Ammonium pentadecafluoro octanoate	335-67-1 3825-26-1	PFOA APFO	Yes	Yes	Included since 2020	Yes
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propionic acid, its salts and its acyl halides	Various	HPFO-DA	Yes			
Broader PFAS regulation in EU/EEA	Suggested to cover all compounds that include one or more perfluorinated moieties.	Various		Proposed		

PESTICIDES, AGRICULTURAL & RESIDUAL

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Various (ref. Appendix A of the AFIRM RSL. http://afirm-group.com/afirmrsl)	Various	May be found in natural fibres, e.g. cotton and leather.	Natural fibres: ISO 15913/DIN 38407 F2 or EPA 8081/EPA 8151A or BVL L 00.00-34:2010-09	0.5 mg/kg each	0.5 mg/kg

Biocides are prohibited from use on NA-KD products or materials.

PH-ACIDIC AND ALKALINE SUBSTANCES

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
pH-value	Various	pH-values are characteristic numbers, ranging from pH 0 to pH 14, showing the content of acidic or alkaline substances in a product. pH-values above 7 are alkaline (basic), and pH-values below 7 are acidic. pH-values of products should be close to the pH-value of human skin (approx. pH 5.5), to avoid chemical burns or skin irritation.	Textiles: EN ISO 3071:2020 (KCI Solution) Leather: EN ISO 4045:2018	Textiles: 4.0 - 7.5 Leather: 3.5 - 7.0	Not applicable

PHTHALATES

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Di-Iso-nonylphthalate (DINP)	28553-12-0	Phthalates are a class of organic compound, commonly used to increase flexibility in plastics or facilitate the molding of plastic. Phthalates may be found in neoprene, textile prints, adhesives, plastic coated trims and accessories (e.g. buttons, buckles and zippers), polymeric coatings, and in flexible plastic components (including PVC and PU), etc.	Measurement: EN ISO 14389:2014 EN ISO 16181-1:2021 (footwear)	500 mg/kg each	50 mg/kg each
Di-n-octylphthalate (DNOP)	117-84-0			Total: 1,000 mg/kg	
Di(2-ethylhexyl)-phthalate (DEHP)	117-81-7				
Diisodecylphthalate (DIDP)	26761-40-0				
Butylbenzylphthalate (BBP)	85-68-7				
Dibutylphthalate (DBP)	84-74-2				
Diisobutylphthalate (DIBP)	84-69-5				
Di-n-hexylphthalate (DnHP)	84-75-3				
Diethylphthalate (DEP)	84-66-2				
Dimethylphthalate (DMP)	0131-11-3				
Di-n-pentyl phthalate (DPENP)	131-18-0				
Dicyclohexyl phthalate (DCHP)	84-61-7				
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6				

Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8			
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4			
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0			
Diisopentyl phthalate (DIPP)	605-50-5			
N-pentyl-isopentylphthalate (PIPP)	776297-69-9			
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4			
1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters with $\geq 0.3\%$ of dihexyl phthalate (CAS 84-75-3)	68515-51-5			
1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with $\geq 0.3\%$ of dihexyl phthalate (CAS 84-75-3)	68648-93-1			
Diisohexylphthalate (DIHXP)	71850-09-04			

All Ortho-phthalates are prohibited from use on NA-KD products or materials. The list above includes the most commonly used and regulated phthalates.

POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Acenaphthene	83-32-9	PAHs are natural components of crude oil and are common residues from oil refining. Oil residues containing PAHs can be added to plastics or rubber as an extender or softener. They may be found in plastics, rubber, coatings and lacquers, in printing pastes, and in the outsoles of footwear, etc.	EN 17132:2019 (textile) CEN ISO/TS 16190:2013 (footwear) AFPS GS 2019	0.5 mg/kg per PAH	0.2 mg/kg each
Acenaphthylene	208-96-8				
Anthracene	0120-12-7				
Benzo(g,h,i) perylene	191-24-2				
Fluorene	86-73-7				
Fluoranthene	206-44-0				
Indeno(1,2,3-cd) pyrene	193-39-5				
Naphthalene	91-20-3				
Phenanthrene	85-01-8				
Pyrene	129-00-0				
Benzo(a) anthracene	56-55-3				
Benzo(a)pyrene	50-32-8				
Benzo(b) fluoranthene	205-99-2				
Benzo[e]pyrene	192-97-2				
Benzo[j] fluoranthene	205-82-3				
Benzo(k) fluoranthene	0207-08-09				
Chrysene	0218-01-09				
Dibenzo(a,h) anthracene	53-70-3				

POLYVINYL CHLORIDE (PVC)

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Polyvinyl Chloride	9002-86-2	Vinyl Chloride is a precursor for polymerization and may be present in various PVC materials like prints, coatings, flip flops, and synthetic leather.	Bilstein Method and Infra-red spectroscopy	No usage as far as avoidable	

SILICONES

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Octamethyl cyclotetrasiloxane (D4)	556-67-2	Precursors in silicon-based materials and chemical products.	Solvent extraction and GCMS for analysis	1000 mg/kg per siloxane	200 mg/kg per siloxane
Decamethyl cyclopentasiloxane (D5)	0541-02-06				
Dodecamethyl cyclohexasiloxane (D6)	540-97-6				

SOLVENTS / RESIDUALS

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Dimethylformamide (DMFa)	68-12-2	Solvent mainly used in rubber, plastics, adhesives, and polyurethane (PU) coating and printing. Water-based PU is preferable as it does not contain DMFa.	All materials: EN 17131:2019 (textile) CEN ISO/TS 16189:2013 (footwear)	500 mg/kg	50 mg/kg each
Formamide	75-12-7	By-product in foam production, such as EVA foam		1000 mg/kg each	
Dimethylacetamide (DMAC)	127-19-5	Solvent used in the production of elastane fibres. Sometimes as substitute for DMFa.			
Hydrazine	302-01-2	Foaming agent for plastics.	Solvent extraction followed by GCMS.		10 mg/kg
C,C'-azodi(formamide) (ADCA)	123-77-3				
N-Methyl-2-pyrrolidone (NMP)	872-50-4	Industrial solvent used in production of water-based Polyurethanes and other polymeric materials. Sometimes used as a paint stripper or a surface treatment for resins, textiles and metal-coated plastics.			50 mg/kg each

VOLATILE ORGANIC COMPOUNDS (VOCS)

SUBSTANCE	CAS NO.	POTENTIAL USES	TEST METHOD	NA-KD LIMIT	REPORTING LIMIT
Benzene	71-43-2	<p>VOC are associated with solvent-based processes such as solvent-based Polyurethane coatings and glues/adhesives.</p> <p>Some VOCs are used in adhesives, fabric and leather coatings, screen print inks, and synthetic leather</p> <p>The listed VOCs should not be used in textile auxiliary chemical preparations, or in any kind of spot cleaning or facility cleaning.</p>	<p>For general VOC screening:</p> <p>GC/MS headspace 120 °C, 45 minutes</p>	5 mg/kg	5 mg/kg
Carbon Disulfide	75-15-0			Total: 1000 mg/kg	20 mg/kg each
Carbon Tetrachloride	56-23-5				
Chloroform	67-66-3				
Cyclohexanone	108-94-1				
1,2-Dichloroethane	0107-06-02				
1,1-Dichloroethylene	75-35-4				
Pentachloroethane	76-01-7				
Ethylbenzene	100-41-4				
1,1,1,2- Tetrachloroethane	630-20-6				
1,1,2,2- Tetrachloroethane	79-34-5				
Tetrachloroethylene (PERC)	127-18-4				
Toluene	108-88-3				
1,1,1- Trichloroethane	71-55-6				
1,1,2- Trichloroethane	79-00-5				
Trichloroethylene	79-01-6				
Xylenes (meta-, ortho-, para-)	1330-20-7 108-38-3 85-47-6 106-42-3				
Benzene	71-43-2	<p>Benzene to make other chemicals that are used to make plastics, resins, and nylon and synthetic fibres.</p> <p>Benzene is also used to make some types of lubricants, rubbers, dyes, detergents, drugs, and pesticides.</p>	GC/MS headspace 120 °C, 45 minutes.	5 mg/kg	1 mg/kg

REQUIREMENTS FOR COSMETIC PRODUCTS

All cosmetic products produced for NA-KD must comply with the ANNEX II to VI of the Regulation (EC) No 1223/2009 and its amendments. The manufacturer or importer is obligated to ensure that restrictions of substances listed in **Annex II to VI of the regulation (EC) No 1223/2009 and its amendments** on cosmetics are considered.

NA-KD
RESTRICTED SUBSTANCES LIST