



ENVIRONMENTAL GUIDELINE

VERSION 3.0

G-Star Raw C.V.



TABLE OF CONTENTS

FOREWORD

SECTION 1 – INTRODUCTION

- 1.1 PURPOSE
- 1.2 OBJECTIVES
- 1.3 HAZARDS AND RISKS
- 1.4 ENVIRONMENTAL REQUIREMENTS
- 1.5 SUSTAINABLE RESOURCES

SECTION 2 – RESTRICTED SUBSTANCES PRODUCT LEVEL, (INCLUDING ACCESSORIES)

- 2.1 INTRODUCTION
- 2.2 METHODOLOGY
- 2.3 RESTRICTED SUBSTANCE LIST (RSL) TESTING POLICY
- 2.4 REACH REGULATION AND REQUIREMENTS
- 2.5 DETAILS ON RESTRICTED SUBSTANCES
 - 2.5.1 AZO DYES WHICH BY REDUCTIVE CLEAVAGE MAY RELEASE ONE OR MORE AROMATIC ARYLAMINES
 - 2.5.2 PHTHALATES
 - 2.5.3 ALKYLPHENOLS (AP) AND ALKYPHENOL ETHOXYLATES (APEO)
 - 2.5.4 HEAVY METALS
 - 2.5.5 PERFLUORINATED CHEMICALS
 - 2.5.6 POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)
 - 2.5.7 CHLOROBENZENES AND CHLOROTOLUENES
 - 2.5.8 ORGANOTIN COMPOUNDS
 - 2.5.9 CHLORINATED/HALOGENATED SOLVENTS
 - 2.5.10 CHLOROPHENOLS AND O-PHENYLPHENOL
 - 2.5.11 CHLORINATED PARAFFINS
 - 2.5.12 ALLERGENIC DISPERSE DYES
 - 2.5.13 CARCINOGENIC DYES
 - 2.5.14 FLAME RETARDANTS
 - 2.5.15 OTHER SOLVENTS/VOLATILE ORGANIC COMPOUNDS (VOC)
 - 2.5.16 POLYVINYLCHLORIDE (PVC)
 - 2.5.17 FORMALDEHYDE
 - 2.5.18 DYES WITH ENVIRONMENTAL PROBLEMS
 - 2.5.19 DIMETHYL FURMARATE AND TRICOLSAN
- 2.6 RESTRICTED SUBSTANCE LIST VERSION 1.4

SECTION 3 – MANUFACTURING RESTRICTED SUBSTANCES CHEMICAL FORMULATION LEVEL

- 3.1 INTRODUCTION
- 3.2 METHODOLOGY
- 3.3 PROCEDURE FOR INVENTORY AND DISCLOSURE
- 3.4 GUIDANCE FOR MRSL CONFORMANCE
- 3.5 MANUFACTURING RESTRICTED SUBSTANCE LIST COMPLIANCE ACKNOWLEDGEMENT
 - 3.5.1 CHEMICAL MANAGEMENT POLICY (G-STAR SUPPLIER)
 - 3.5.2 CHEMICAL SUPPLIER STATEMENT OF COMPLIANCE
- 3.6 BLUESIGN® SYSTEM
- 3.7 MANUFACTURING RESTRICTED SUBSTANCE LIST 2.0

SECTION 4 – CHEMICAL MANAGEMENT SYSTEM

- 4.1 INTRODUCTION
- 4.2 METHODOLOGY
- 4.3 ROLES AND RESPONSIBILITIES
- 4.4 COMMUNICATION AND TRAINING
- 4.5 CHEMICAL INVENTORY AND RISK ASSESSMENT
 - 4.5.1 GENERAL ASPECTS
 - 4.5.2 OCCUPATIONAL HEALTH AND SAFETY
 - 4.5.2.1 MECHANICAL AND ELECTRICAL HAZARDS
 - 4.5.2.2 CHEMICAL HAZARDS/ EXPOSURE CONTROL
 - 4.5.2.3 NOISE
- 4.6 SAFETY DATA SHEETS
- 4.7 CLASSIFICATION AND LABELLING OF CHEMICALS
- 4.8 CHEMICAL HANDLING
- 4.9 CHEMICAL STORAGE
- 4.10 PROCEDURE FOR SPILLS AND LEAKS
- 4.11 DETERMINATION OF APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT
- 4.12 STANDARD OPERATING PROCEDURE CHEMICALS
- 4.13 HOUSEKEEPING
- 4.14 WASTES, WASTE DISPOSAL AND PREVENTION
 - 4.14.1 WASTE AND WASTE DISPOSAL
 - 4.14.2 WASTE PREVENTION
- 4.15 EMERGENCY PROCEDURES

SECTION 5 – WASTE WATER DISCHARGE GUIDELINE

- 5.1 INTRODUCTION
- 5.2 METHODOLOGY
- 5.3 DISCHARGE WASTE WATER LIMITS
- 5.4 SAMPLING POINT LOCATION AND METHODS
- 5.5 DATA REPORTING AND ANALYSIS

SECTION 6 – EMISSION TO AIR, NOISE, WASTE AND SOIL

- 6.1 AIR EMISSIONS
- 6.2 NOISE
- 6.3 WASTE
- 6.4 SOIL



FOREWORD

At G-Star, we constantly innovate with the endless possibilities of materials, styles and cuts to create products that are unique but recognizable for their consistent G-Star signature look. As G-Star does not own or operate any factories, we work together with skillful suppliers that share our passion to make a strong product.

Our vision – we want to produce great products with a minimum environmental impact.

G-Star's aim is to bring sourcing practices, design and development in line with the principle of a sustainable production. Being a forward looking company that wants to continue making iconic products in the future, G-Star acknowledges the need to look into sustainable solutions. Only when creating products with minimal environmental impact, we are able to continue as a successful company.

Within our Corporate Responsibility approach, we prioritize the social and environmental aspects of the manufacturing of our product. The biggest positive impact can be made here.

In the G-Star Code of Conduct the standards have been set for the social and environmental performance within our supply chain. This environmental guideline is drafted to guide and explain the environmental standard as laid down in our Code of Conduct to our business partners in our supply chain. By following the principles of our guidelines we can jointly create great products with a minimum environmental impact. We believe that working in a sustainable and innovative way we can contribute to a better world, bringing more awareness to both sides, our business partners, so as to our customers.

As sustainability, so as environmental management, consumer safety and compliance is key for our business practices today, G-Star believes in the empowerment towards a more innovative and sustainable value chain.

This guideline does not replace any country specific environmental or workplace safety laws and regulations. It is the responsibility of the individual supplier to ensure that they meet all legal requirements and obtain necessary approval, permissions and compliances related to the people (worker, neighborhood and consumer) and environmental impact of their operations.



SECTION 1 - INTRODUCTION

1.1 PURPOSE

With this guideline G-Star promotes a standard of environmental management that ensures safe and responsible production of G-Star products. The guiding manual shall help business partners in advising to manage the environmental standards as set forth in our Code of Conduct.

This guideline does not replace country specific environmental or workplace safety restrictions. It is the responsibility of the individual supplier to ensure that they meet all legal requirements and obtain necessary approval, permissions and compliances related to the environmental impact of their operations.

The guideline is a minimum requirement only. In some cases, suppliers may be required to achieve higher standards.

1.2 OBJECTIVES

Scarcity of natural resources, pollution and environmental degradation are issues that affect everybody. G-Star wants to address these issues to protect and restore the natural environment for our suppliers, its employees and the countries in which they live and work, for our clients and for nature itself.

In order to control and manage environmental issues, our business partners shall include environmental management in their daily practice of operations and doing business.

G-Star expects our business partners to implement a risk management approach in their handling of operational risks, hazards and chemicals. This shall help to continuously minimize risks of hazards and improve manufacturing processes and operations.

1.3 HAZARDS AND RISKS

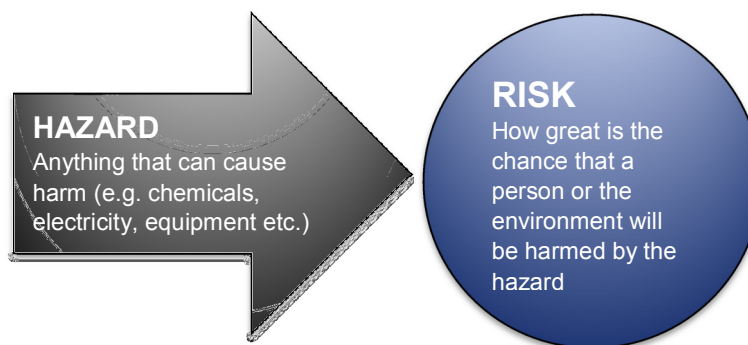
Risk is the consequence resulting from the release of a hazard.

What is a hazard?

A **hazard** is any source of potential damage, harm or adverse health effects on something or someone under certain conditions at work.

What is a risk?

Risk is the chance or probability that a person and/or the environment will be harmed or experience an adverse health effect if exposed to a hazard. It may also apply to situations with property or equipment loss.



What kind of hazards are there?

A common way to classify hazards by their category:

- **Biological** (Bacteria, Viruses, insects, plants, animals, etc.)
- **Chemical** (Chemical and toxic properties of the chemical)
- **Physical** (radiation, high pressure or vacuum, noise etc.)
- **Safety** (slipping, tripping hazard, inappropriate machine guarding, equipment breakdowns)
- **Psychosocial** (Stress, Violence etc.)
- **Ergonomic** (repetitive movements, improper set-ups)

1.4 ENVIRONMENTAL REQUIREMENTS

Suppliers, their subcontractors and business must comply with all applicable environmental rules, regulations and standards applicable to the workplace, the products produced, and the methods of manufacture and must observe environmental conscious practices in the locations where they operate and in the materials they use. Suppliers, their subcontractors and business partners are also expected to treat the land they use for whatever purpose in a respectful way that does no long term damage to it and to be respectful of the diversity of the plant and animal life with which they share it. Supplier agrees to be monitored for environmental responsibility and shall continuously monitor, and disclose to G-Star, their energy and natural resource usage, emissions, discharges, carbon footprint and disposal of wastes and take a progressive approach to minimize negative impacts on the environment.

1.5 SUSTAINABLE RESOURCES

The growing population and industrial activities cause shortages of raw materials and consequently rising prices. Industries should strive towards the reduction of materials, and look for options to use renewable materials, use recycled materials and reuse materials whenever possible.

We not only work to increase the use of sustainable materials in our collection but also strive to improve the finishes and washes we use in our production process. We can minimize the environmental impact of our products by looking for materials, washing techniques, and finishes that contribute to a more sustainable future without compromising on quality, comfort and design.

For all other materials we use in our collection, we aim to use 90% of sustainable materials by 2020. These materials range from natural fibers such as recycled wool, to polymers such as recycled nylon. G-Star is committed to ensure that all raw materials used in our products are grown and manufactured in a responsible way that preserves (natural) resources and respects human & animal rights.

SECTION 2 - RESTRICTED SUBSTANCES PRODUCT LEVEL, (INCLUDING ACCESSORIES)

2.1 INTRODUCTION

The purpose of the Restricted Substance List is to inform our supplier on all chemicals that are banned or restricted in G-Star finished products. Our suppliers are expected to study this part carefully and communicate the information to relevant internal teams, sub-contractors and others involved in the production of G-Star products.

Each supplier is required to declare and ensure that the goods supplied comply with the limitations described or referred to in the Restricted Substance List and any additional requirements imposed by law or local authorities.

It is G-Star's goal that this Restricted Substance List will serve as a practical tool to help suppliers to become more aware of various national regulations governing the amount of substances that are permitted in finished textile, apparel and footwear products.

2.2 METHODOLOGY

The Restricted Substances List includes only those materials, chemicals and substances that are restricted or banned in finished products, textile, apparel, accessories and footwear. Limits given are either due to regulation, law or due to G-Star's restriction of various substances.

The Restricted Substance List does not include regulations that restrict the use of substances in production processes or in the factory, the focus is whether or not the substance can be found in the finished product, textile, apparel, accessories and footwear at a certain level.

2.3 RESTRICTED SUBSTANCE LIST (RSL) TESTING POLICY

G-Star expects all partners to ensure that all materials and products supplied to G-Star are in full compliance with the actual laws and regulations regarding product related harmful substances.

Suppliers are responsible to only ship compliant products to G-Star. Suppliers will be held responsible and liable for all loss and damage suffered by G-Star, should any hazardous substance be found in the materials, components or final product.

Based on G-Star's risk assessment, regularly and frequent testing will be carried out to verify effectiveness of each suppliers/manufacturers testing program. RSL testing will only be carried out and accepted from laboratories nominated and approved by G-Star. For further information, please contact our RSL Specialist.

Failures to comply with the requirements according to our Restricted Substances List can result in a business review by G-Star and may result in the removal of manufacturers or suppliers from the approved supplier list as well as a claim of compensation for cost as a consequence of the compliance failure.

2.4 REACH REGULATION AND REQUIREMENTS

REACH REGULATION 1907/2006

REACH is a European Union Regulation dated 18 December 2006. It has been described as the most complex legislation in the European Union's history and the most important one in the last 20 years.

In principle, REACH applies to all chemical substances; not only those used in industrial processes but also in our day-to-day lives, for example in cleaning products, paints as well as in articles such as clothes, furniture and electrical appliances. Therefore, the regulation has an impact on most companies across the Europe, but also for all companies importing articles or chemicals into the European Union and the European Economic Area (EEA).

REACH stands for Registration, Evaluation, Authorisation and Restriction of Chemicals. It entered into force on 1 June 2007.

ECHA, the European Chemical Agency located in Helsinki, Finland is the organization managing the REACH process.

Any producer or importer of articles shall submit a notification to the Agency for any substance contained in those articles, if the following conditions are met:

- a) Substances of the candidate list are present in the imported/produced articles with over 0.1% w/w.
- b) The substance is present in all produced or imported articles with an amount of over 1 ton a year per importer or producer.

According to article 33 (1) of the REACH REGULATION 1907/2006 manufacturers and importers of articles (products) are required to notify their customers of the presence of any Substances of Very High Concern (SVHC) in their products exceeding 0.1% by weight and provide instructions on safe use of the product.

- Determination whether products contain any SVHCs >0.1% by weight
- Disclose the presence of SVHCs in products within 45 days upon request from consumers or customers
- Ensure environmental compliance and safety of the product

The full list of Substances of Very High Concern can be found here-
[Candidate List of Substances of Very High Concern for authorisation](#)

After a two-step regulatory process, SVHCs may be included in the Authorisation List and become subject to authorisation. These substances cannot be placed on the market or used after a given date, unless an authorisation is granted for their specific use, or the use is exempted from authorisation.

[Authorisation List - ECHA](#)

2.5 DETAILS ON RESTRICTED SUBSTANCES

In order to understand the health and environmental impact of hazardous substances used in textile manufacturing, this section will give some further guidance.

2.5.1 AZO DYES WHICH BY REDUCTIVE CLEAVAGE MAY RELEASE ONE OR MORE AROMATIC ARYLAMINES

Azo dyes and pigments are colorants that incorporate one or several azo groups (-N=N-) bound with aromatic compounds. Thousands of azo dyes exist, but only those which degrade to form listed amines are restricted. Azo dyes are used in dyed fabric or leather.

Restricted amines also may be present or formed during cleavage of unintended impurities in raw materials used for dyestuff production.

2.5.2 PHTHALATES

Phthalates are a class of organic compounds added to plastics to increase flexibility. In textiles and apparel, phthalates can be associated with flexible plastic components, trims, screen and plastisol prints. Phthalates are often classified as repro-toxic and can cause birth defects and changes in hormone levels.

Phthalates can be found in Flexible Plastic components (e.g. PVC), Pigment printing, Adhesives, Plastic buttons, Plastic sleeveings, Coatings, etc.

2.5.3 ALKYLPHENOLS (AP) AND ALKYPHENOL ETHOXYLATES (APEO)

APEOs can be used as or found in: Detergents, Scouring agents, Wetting agents, Softeners, Emulsifier/dispersing agents for dyes and prints, Impregnating agents, Degreasing agents for leather, Leather Finishing, De-gumming for silk production, Dyes and pigment preparations, Polyester padding and Down/feather fillings.

APEOs degrade only partially during waste water treatment, reverting to the more toxic AP (alkylphenol)/OP (octylphenol) and particularly NP (nonylphenol). NP is very persistent in the environment and does not degrade readily, very toxic to aquatic organisms and described as endocrine disrupter.

2.5.4 HEAVY METALS

Many heavy metals are bio accumulative when absorbed by the human body through perspiration and give cause for concern in health terms such as chronic toxicity, allergenic reactions and cancer

Lead: In apparel and footwear, lead may be associated with plastics, paints, inks, pigments, surface coatings and metal components.

Cadmium: Compounds are found in or used as: Pigments (particularly red, orange, yellow, and green), Stabilizer for PVC plastic, Fertilizers, Biocides and paints (e.g. surface paints on zippers and buttons.)

Mercury: Compounds can be present in pesticides and can be found as contamination in caustic soda (NaOH). Mercury compounds can be used in paints (e.g. surface paints on zippers and buttons).

Nickel: Is mainly used for plating of alloys, improving the corrosion resistance in alloys, improving the hardness of alloys and is a key element in the production of stainless steel. Certain dyestuffs contain complex bound Nickel. Both Nickel metal and Nickel compounds can occur as an impurities in pigments and alloys.

Arsenic: And its compounds can be used in some preservatives, pesticides and defoliants for cotton.

Chromium III: Chromium is used in leather tanning and can be oxidized into Chromium VI if processes are not well maintained.

2.5.5 PERFLUORINATED CHEMICALS

Perfluorooctane sulfonate (PFOS) and Perfluorooctanoic acid (PFOA) may be present as unintended by-products in long-chain commercial water, oil and stain repellent agents. PFOA can also be generated from other by-products (esp. the telomer alcohols) contained in long-chain PFC.

G-Star has a complete ban on the use of Perfluorinated Chemicals (long, but also short chain); alternative water repellent finishing has to be used.

2.5.6 POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

Polycyclic Aromatic Hydrocarbons (PAHs) are natural components of crude oil and they are a common residue from oil refining. PAHs have a characteristic smell similar to the smell of car tires or asphalt. Oil residues containing PAHs are added in rubber and plastics as a softener or extender. Therefore, PAHs are risky in rubber, plastics, lacquers and coatings. PAHs are often found in the outsoles of footwear and in printing pastes of screen prints. PAHs can be present as impurities in Carbon Black. Clean mineral oils should be used in the rubber to avoid PAHs.

2.5.7 CHLOROBENZENES AND CHLOROTOLUENES

Chlorobenzenes (Chlorinated aromatic hydrocarbons) can be used as carriers in the dyeing process of polyester or wool/polyester fibers. They can also be used as solvents.

2.5.8 ORGANOTIN COMPOUNDS

Organotins are a class of chemicals combining tin and organics such as butyl and phenyl groups. Organotins are predominantly found in the environment as antifoulants in marine paints, but they can also be used as biocides (e.g., antibacterials), catalysts in plastic and glue productions, and heat stabilizers in plastics/rubber. In textiles and apparel, organotins may be associated with textiles plastics/rubber, inks, paints, metallic glitter, and heat transfer material, but also in polyurethane coatings and polyurethane membranes.

2.5.9 CHLORINATED/HALOGENATED SOLVENTS

In apparel and footwear, solvents are used as finishing/cleaning and printing agents, for dissolving and diluting fats, oils and adhesives (e.g., in degreasing or cleaning operations).

2.5.10 CHLOROPHENOLS AND O-PHENYLPHENOL

Chlorophenols are polychlorinated compounds used as preservatives or pesticides. Pentachlorophenol (PCP) and Tetrachlorophenol (TeCP) are sometimes used to prevent mould and kill insects when growing cotton and when storing/transporting fabrics. PCP/TeCP can also be used as a preservative in print pastes and in certain disperse dyes.

2.5.11 CHLORINATED PARAFFINS

Short Chain Chlorinated Paraffins are used as flame retardants, in plasticizers, paints and adhesives and for fat liquoring of leather. Short Chain Chlorinated Paraffins may cause long-term adverse effects in the aquatic environment.

Medium Chain Chlorinated Paraffins used as secondary plasticizer in PVC, can also be used in metal working fluids, paints, varnishes, adhesives/sealants, flame retardants, leather fat liquors, carbonless copy paper.

2.5.12 ALLERGENIC DISPERSE DYES

Disperse dyes are a class of water-insoluble dyes that penetrate the fiber system of synthetic or manufactured fibers and are held in place by physical forces without performing chemical bonds. Disperse Dyes are used in synthetic fiber (e.g. polyester, acetate, polyamide). Restricted disperse dyes are suspected of causing allergic reactions and should no longer be used for dyeing of textiles.

2.5.13 CARCINOGENIC DYES

Most of these substances are regulated and should no longer be used for dyeing of textiles.

2.5.14 FLAME RETARDANTS

Flame retardant chemicals potentially used in clothing and tent fabric (PU clothing's) to meet safety standards.

2.5.15 OTHER SOLVENTS/VOLATILE ORGANIC COMPOUNDS (VOC)

These volatile organic compounds should not be used in textile auxiliary chemical preparations. They are associated with solvent-based processes like solvent-based PU coatings and glues/adhesives. They should not be used for any kind of facility cleaning or post-cleaning

2.5.16 POLYVINYLCHLORIDE (PVC)

The use of PVC is voluntarily restricted because this hard material is often used in combination with softener/phthalates which are forbidden.

G-Star has therefore a complete ban on the use of PVC.

2.5.17 FORMALDEHYDE

Formaldehyde can be released from and is contained as impurity in anti-creasing, anti-shrinking, easy-ironing and water repellence finishing. Formaldehyde is a toxic chemical which can induce irritation to eyes and nose and even cause cancer.

2.5.18 DYES WITH ENVIRONMENTAL PROBLEMS

Navy Blue has a high aquatic toxicity and is harmful to the environment. Shall not be placed on the market or used for colouring textiles and leather articles.

2.5.19 DIMETHYL FURMARATE AND TRICOLSAN

Dimethyl fumarate (DMFu) and Triclosan is a fungicide used to prevent mould in leather and textiles. They can cause acute dermatitis, eczema, and general fatigue to the persons who have been in contact with this substance.

2.6 RESTRICTED SUBSTANCE LIST VERSION 1.5

For details on G-Star Restricted Substance List, please refer to the following link.

[G-Star RSL Version 1.5](#)

SECTION 3 – MANUFACTURING RESTRICTED SUBSTANCES CHEMICAL FORMULATION LEVEL

3.1 INTRODUCTION

G-Star Raw C.V. is a member of the [Zero Discharge of Hazardous Chemicals Foundation \(ZDHC\)](#), with the mission to advance towards zero discharge of hazardous chemicals in the textile, leather and footwear value chain and act to improve the environment and people's well-being.

In specific the group of brands vision is widespread implementation of sustainable chemistry and best practices in the textile, leather and footwear industries to protect consumers, workers and the environment in the implementation of a joint Manufacturing Restricted Substance List (MRSL) for the apparel and footwear industry. In doing so, brands recognized the value of addressing hazardous substances potentially used and discharged into the environment during manufacturing and related processes deep within their supply chain - not just those substances that could be present in finished products. In June 2014, the ZDHC brands achieved a significant milestone and published the first version of the ZDHC MRSL.

3.2 METHODOLOGY

This Manufacturing Restricted Substance List (MRSL) applies to all G-Star Raw C.V. suppliers. The document addresses hazardous substances potentially used and discharged into the environment during manufacturing and related processes, not just those which could be present in finished products.

The Manufacturing Restricted Substance List is a list of chemical substances banned from the intentional use within chemical formulations used within textile and leather manufacturing facilities for apparel and footwear. Acceptable concentration limits for these chemicals formulations were established.

G-Star anticipates that suppliers will work closely with their chemicals suppliers to ensure substances mentioned in this MRSL are not present in any of the chemical commercial products that are purchased from chemical suppliers. The intent of the MRSL is to manage the input of chemicals to the supplier and remove these hazardous substances from the manufacturing processes.

This MRSL is an important part of G-Star's Corporate Responsibility program and must be shared with all suppliers, sub-contractors and others involved in the production of G-Star products. The following production processes are targeted by this document: Textile and synthetic leather, so as leather processing.

3.3 PROCEDURE FOR INVENTORY AND DISCLOSURE

In order to identify hazardous substances used in the production of G-Star products, suppliers are obliged to take action on the following-

- For all chemicals, such as pure chemicals and formulation applying to dyestuff, auxiliaries and chemicals stored or used on site related to all wet processes, printing, cleaning agents, water and waste water treatment, PEST management (pest control, related to pesticides and herbicides), firefighting extinguishers etc. and inventory must be prepared.
- The inventory shall specify the potential intrinsic hazard of each chemical or chemical formulation based on their GHS/CLP classification.

- The inventory shall give details on max storage capacity, storage location, use of chemical or chemical formulation such as dyestuff; enzymes, etc.
- Use the inventory information to build a Hazardous Substance Register
- Make sure inventory is updated on a regular basis, also in case of new chemicals or chemical formulations are purchased or declared as hazardous based on new chemicals classification criteria

3.4 GUIDANCE FOR MRSL CONFORMANCE

The Manufacturing Restricted Substance List will assist in the control of hazardous substances used in the production of textile and leather products. G-Star anticipates that suppliers will work closely with their chemical and material suppliers to ensure chemical substances mentioned on the MRSL are not present above the limits given in any of the chemical formulations purchased from chemical suppliers.

Implementation shall be done by all direct and indirect suppliers of G-Star. This process will require commitment, assessment, management, monitor and review. You as a supplier shall assign responsibility of the implementation process and the ongoing compliance process to an employee, preferably with chemical management experience.

PROCESS STEPS

Commitment

Suppliers shall commit to eliminate the use of hazardous chemicals as per G-Star's MRSL and implement the MRSL in all its production processes.

Assessment

Suppliers shall review their manufacturing process and apply the MRSL requirements.

Suppliers shall include chemical formulations present in recipes used for specific manufacturing processes.

Suppliers shall evaluate their chemical supplier to ensure they understand and meet the requirements of the MRSL. Chemical supplier shall provide a declaration of conformity and be able to provide a positive list of non-hazardous chemical formulations.

Management

Suppliers shall assign a Chemical Manager who will implement and maintain a Chemical Management System to support the MRSL implementation. It is recommended that factories establish (if not already in place) a Chemical Management Policy.

The Chemical Manager will also be responsible to make sure all employees are trained on Chemical Management and the requirements of a MRSL.

Monitor and Review

On a regular basis the Chemical Manager shall monitor and review MRSL conformance of all chemicals used.

This process shall also serve to evaluate if more sustainable chemistry is available on the market. As a benefit an up to date record of a chemical inventory is available anytime.



3.5 MANUFACTURING RESTRICTED SUBSTANCE LIST COMPLIANCE ACKNOWLEDGEMENT

In order to acknowledge this compliance process, the following declaration must be signed by the suppliers and further down the supply chain, by the respective chemicals supplier who provides chemical substances and chemical formulations.

3.5.1 CHEMICAL MANAGEMENT POLICY (G-STAR SUPPLIER)

As a G-Star supplier you acknowledge that you will be responsible to implement the MRSL requirements within your own production sites over time, so as to passing this information further down your supply chain and to your subcontractors.

Chemical Management Policy G-Star's Manufacturing Restricted Substance List, MRSL

Supplier:
Location: (Country)
Date: (dd/mm/yyyy)

(Company Name of Garment Maker/Dyeing Facility/Laundry) is committed to the elimination of hazardous chemicals in all chemical formulation used in the manufacturing processes associated with G-Star products.

Further we commit to the implementation of G-Star's MRSL and requirements and will ensure all chemical suppliers and upstream suppliers are meeting the requirements of G-Star's MRSL.

We believe in the importance of eliminating these chemicals for the health of our employees, the environment and the public.

The document shall be reviewed annually as part of a Chemical Management review.

G-Star is Member of the Zero Discharge of Hazardous Chemicals Foundation, which is non-profit group with the vision of the implementation of sustainable chemistry and best practices in the textile industry to protect consumers, workers and the natural environment. For more information, please visit www.roadmaptozero.com



3.5.2 CHEMICAL SUPPLIER STATEMENT OF COMPLIANCE

As a G-Star supplier you are responsible to distribute the MRSL to your chemical suppliers and ensure that they will sign a statement of compliance. This statement shall ensure that only MRSL compliant products are supplied.

Chemical Supplier Statement of Compliance G-Star's Manufacturing Restricted Substance List, MRSL

Supplier: (Chemical Supplier Company Name)
Location: (Country)
Date: (dd/mm/yyyy)

To attention of:

(Partner Company Name)

List of Products:

The above products do not intentionally contain any substance listed in G-Star's MRSL or ZDHC MRSL. The restricted substances may be present as trace impurities below limits of G-Star's MRSL or ZDHC MRSL.

G-Star is Member of the Zero Discharge of Hazardous Chemicals Foundation, which is non-profit group with the vision of the implementation of sustainable chemistry and best practices in the textile industry to protect consumers, workers and the natural environment. For more information, please visit www.roadmaptozero.com

3.6 BLUESIGN® SYSTEM

The bluesign® system reduces the environmental impact concerning the entire textile supply chain. With its holistic approach the Input Stream Management provides an efficient solution for chemical suppliers, textile and accessories manufacturer as well as fashion brands. Stating the principles and monitoring the implementation of the bluesign® system, bluesign technologies ag encourages the textile industry to increase their efforts in sustainable processes.

With respect to a chemical management bluesign® is providing the solution for a fundamental and solid system that achieves input stream management. It is of uttermost importance that suppliers only purchase chemicals from responsible suppliers which can show positive list (MRSL compliant) or directly work with the bluefinder data base from bluesign®.

Benefit from the fact that the always most up-to-date search engine provides you the latest easily comprehensible textile-relevant EHS information and helps to search for sustainable solutions with respect to consumer safety.

3.7 ZDHC MRSL Conformances

The ZDHC provides brands and their value chains with a harmonized approach to managing chemical formulations used during the processing of raw materials and garment finishing with the textile, leather and footwear value chain. By using chemical formulation that are in conformance to the ZDHC MRSL limits, material suppliers can assure themselves, and their customers, that banned chemical substances are not intentionally used during production.

The ZDHC Programme chooses to assess ZDHC conformance by relying on third-parties who provide certification systems, based on input stream management concept and product evaluation that are recognized and accepted by the ZDHC Programme as credible.

Chemical formulations with certifications from these suppliers are termed ZDHC MRSL conforming and will be listed in the ZDHC Chemical Gateway. While some of the certification systems may go beyond checking for ZDHC MRSL conformance, the ZDHC MRSL conformance process only refers to whether the chemical formulation meets the requirements of the ZDHC MRSL.

Not all chemical suppliers currently work with a third-party certification body. To account for this, the ZDHC MRSL conformance process includes a process to assist chemical suppliers on their journey to demonstrating conformance through third-party certifications. They can register their company and the safety data sheet (SDS) for the product on the ZDHC Chemical Gateway.

What does MRSL Conformance according to ZDHC mean?

ZDHC MRSL conformance means that the chemical formulation does not contain any of the chemical substances on the ZDHC MRSL above the ZDHC MRSL threshold commercial formulation limit values.

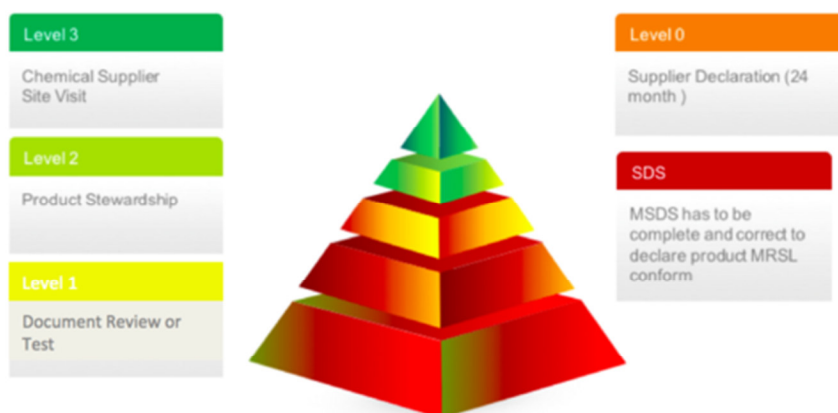


Figure 1. MRSL Levels of Conformance

ZDHC MRSL conformance levels range from 0 to 3 as seen in Figure 1. These levels provide a buyer of chemical products a level of confidence that indicating how any given chemical product conforms to the ZDHC MRSL. The higher the conformance level, the more extensive and thorough the review of the chemical formulation and its producer can be guaranteed.

The Conformance Guidance forms the backbone of the [ZDHC Gateway - Chemical Module](#) which is the place where chemical suppliers can register their company and formulations and display the conformance levels of their products in accordance with the indication system established by the guidance. Manufacturers and brands can use the Chemical Module to find ZDHC MRSL conformant safer alternatives.

Certification bodies who are interested in becoming ZDHC accepted certifiers can review the requirements set out in the Conformance Guidance for having their certification process accepted by ZDHC as part of the indication system for ZDHC MRSL conformance

3.7 MANUFACTURING RESTRICTED SUBSTANCE LIST VERSION 3.0

For details on G-Star Manufacturing Restricted Substance List, please refer to the following link.

[G-Star Manufacturing Restricted Substance List Version 3.0](#)

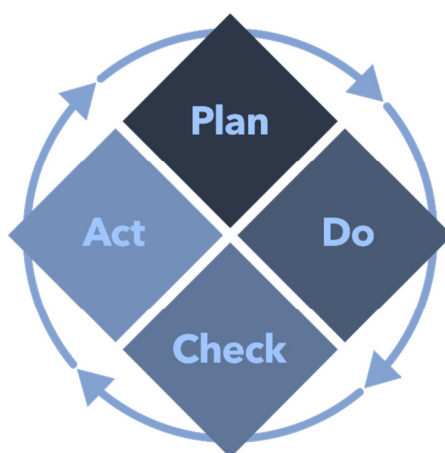
SECTION 4 – CHEMICAL MANAGEMENT SYSTEM

4.1 INTRODUCTION

A chemical management system shall focus on the approach, structure and documentation needed to create and support a Zero Discharge of Hazardous Chemicals (ZDHC) Program. A firm chemical management system is predominant to worker safety and will reduce environmental impacts on the community and the broader environment. It is therefore essential for ensuring continuous improvement towards the goal of zero discharge of hazardous chemicals throughout the life cycle of our products.

4.2 METHODOLOGY

The first step of implementing a chemical management system is to clearly commit to the system. G-Star recommends that the Chemical Management System shall be structured according to the PDCA (Plan, Do, Check, Act) cycle which is based on a continuous improvement principle.



PLAN

Commitment to a Chemical Management System
Assessment, Planning and Prioritization

DO

Implement a Chemical Management System

CHECK

Monitoring

ACT

Management Review

Country specific and regulatory requirement are not addressed. Each supplier is expected to become informed of these requirements for their specific operation and incorporate manufacturing practices to maintain regulatory compliance within their chemical management program.

4.3 ROLES AND RESPONSIBILITIES

The responsibility for managing chemicals should not be the sole responsibility of one person but rather a team. Therefore following roles and responsibilities shall be implemented in factories producing textile/leather materials for apparel and footwear.

G-Star strongly recommends only to purchase chemicals from suppliers who can show responsible care practices, have developed positive lists or have products listed on the bluesign® bluefinder and/or on the ZDHC Chemical Gateway.

EH&S Manager

- Oversee the entire chemical management system and attend any EH&S audit in the factory
- Lead any investigation and review and implement a corrective action plan in case of a product/effluent noncompliance with MRSL requirements
- Work with the rest of the Chemical Management Team to ensure compliance with G-Star's MRSL
- Ensure an adequate purchasing process, an up to date chemical inventory and that all Safety Data Sheets (SDS) are up to date
- Provide on-site internal training to the rest of the workers

ETP Manager/Technician

- Understand and provide insight on the impacts on effluent from chemical inputs
- Ensure compliance of effluent quality to legal regulatory requirements
- If any of the chemicals on G-Star's MRSL are detected in the water quality, this should be reported to the EH&S Manager and the Chemical Management Team to review and implement a corrective action plan
- If chemical treatment is in place at the ETP, the chemical application records should be maintained and regularly updated

Product Quality Manager

- Ensure that any chemical purchases/substitution meet not only product performance needs but also MRSL compliance
- Best practice: Enable the bluesign® bluefinder and/or ZDHC Chemical Gateway to select process chemicals, which can guarantee full MRSL compliance
- Understand the relationship between chemicals used (in manufacturing) and the associated production processes
- Review all SDSs for any incoming chemicals purchased to ensure compliance with the MRSL and obtain chemical suppliers confirmation
- If any of the chemicals on the MRSL are detected in the final product, this should be reported to the EH&S Manager and the Chemical Management Team to review and implement a corrective action plan

Operation/Production Manager

- Needs to ensure the proper application of chemicals (nature/quantity, etc.) and raw materials for the production of products
- Work closely with the Product Quality and Purchasing Manager to ensure that chemicals purchased and used are in compliance with the G-Star MRSL

Purchasing/Procurement Manager

- Align on purchasing chemicals that are in compliance with the MRSL
- Obtain all SDSs and relevant chemical test reports from chemical suppliers and ensure they are maintained and regularly updated
- Work with the Product Quality Manager to ensure such documents meet legal requirements prior to making any purchasing decisions

4.4 COMMUNICATION AND TRAINING

G-Star wants to outline the importance of implementing a Chemical Management System and expects factories to establish, document and implement a process for communicating about Chemical Management within their business organization.

This will include a clear guidance on training of all personnel that play an important and critical role as described in the chapter 4.3 above. This information must be communicated to the organization on a frequent basis.

Suppliers must ensure that competent personnel through appropriate education, training or experience are trained on the following.

1. Preventive environmental and work safety practices
2. Saving resources
3. Proper use of personal protective equipment to prevent eye and skin contact
4. Selection of appropriate hand protection, suitable materials of gloves when it comes to chemical contact
5. Ensure associated chemical records
6. Establish, document and implement a process to conduct and track training records
7. Assessing training effectiveness and monitor learning
8. Ensure that personnel are aware of the relevance and importance of their activities and how they contribute to achieve goals

4.5 CHEMICAL INVENTORY AND RISK ASSESSMENT

4.5.1 GENERAL ASPECTS

Performing a risk assessment shall play an important role in a safe workplace. It is important that a risk assessment remains an ongoing and continuous process, in putting policies in place to manage workplace risks. A solid risk assessment needs to make sure that all relevant risks, not only the intermediate or obvious ones are taken into account. Documentation outcomes of the assessment must be regularly reviewed and records need to be updated.

The principle of every risk assessment is the following:

RISK = HAZARD x EXPOSURE

By carrying out a risk assessment the following questions shall be asked:

What could cause the harm?

Can the hazard be eliminated? If not...

What preventive or protective measures shall be put in place in order to minimize the risk?

4.5.2 OCCUPATIONAL HEALTH

Suppliers are responsible to carry out an occupational health assessment in order to identify possible risks related to releases of hazardous substances, mechanical hazards to personnel and workplace and noise. In case of potential risks, areas shall be marked with safety instruction such as pictograms of hazards within operating area. Appropriate personal protective equipment (PPE) shall be available and used if needed, all personnel shall be trained by an EH&S expert. G-Star recommends that suppliers will follow the train the trainer principle to engage employees at management levels.

Sufficient lighting of work areas must be provided to allow safe performance of production activities. Building construction shall be examined regularly to ensure proper functioning and maintenance.

4.5.2.1 MECHANICAL AND ELECTRICAL HAZARDS

If applicable and relevant, mechanical and electrical hazards have to be assessed within the factory. The following hazards can be applicable:

- Dripping and slipping hazards
- Heat stress
- Forklift operations
- Electrical installations
- Rotating machines
- Sharp Hazards
- Electrostatic discharges
- Improper stacking and unsecure load hazards

4.5.2.2 CHEMICAL HAZARDS/ EXPOSURE CONTROL

In order to establish a profound chemical risk assessment, clear distinction has to be made between primary exposure and indirect exposure to human health, so as direct emissions and indirect emission to the environment. Below examples shall help to identify critical areas in factories.

Primary exposure to human health	Application: applying the pure chemicals/formulation to substrate (skin contact, inhalation of chemicals)
Indirect exposure to human health	Migration: Handling of treated substrates (skin contact)
Direct emission to the environment	Application: applying the pure chemicals/formulations (emissions to water, soil and sediment, groundwater)
Indirect emission to the environment	Leaching: when handling treated substrates (emissions to water, soil)

G-Star encourages factories to establish a program in which the following documentation is available.

- Availability of all Safety Data Sheets for all hazardous chemicals; Safety Data Sheets must be from the chemical manufacturer and up to date
- Identifications of possible risk regarding the exposure to the workplace; if needed establish measuring programs
- Establish safety instruction using pictograms in all relevant working areas
- Define and implement operating procedures for all hazardous materials
- Control and maintain safety equipment and installations
- Install ventilation systems in production areas with high exposure levels
- Practice emergency drills to educate and train personnel in case of incidents

4.5.2.3 NOISE

Loss of hearing is a gradual process yet we seldom if ever are conscious of deterioration until it is too late. Workplace noise can easily be compounded by factors within our everyday environment such as traffic, domestic machinery, gadgets and loud music, all of which contribute to the invisible problem of impaired and irreversible loss of hearing.

In any case, noise prevention is always the preferred option. Factory management shall consider noise prevention also when buying new equipment such as machinery.

The first step is to determine whether or not noise is a potential problem at the workplace. A walk-through survey helps in making this decision, followed by noise measurements in the identified areas. Above noise level 80dB an appropriate ear protection must be available. Level above 85dB can be seen as critical and appropriate hearing protection must be provided.

4.6 SAFETY DATA SHEETS

Safety data sheets (SDS) are the main tool for ensuring that suppliers communicate enough information along the supply chain to allow safe use of their substances and mixtures.

Safety data sheets include information about the properties of the substance (or mixture), its hazards and instructions for handling, disposal and transport and also first-aid, fire-fighting and exposure control measures.

Safety data sheets can be obtained from your supplier at any time. In case chemical suppliers are not able to deliver safety data sheets for classified substance or mixtures (formulation), we must clearly question their level of responsible care and compliance towards global regulations.

Safety data sheets shall be provided in the local language and be in accordance with the GHS/CLP standard/regulation.

Safety Data Sheets contain 16 Section which provide information as followed.

Section 1	Identification of the substance/mixture (formulation) and of the company undertaking
Section 2	Hazard Identification
Section 3	Composition/Information on ingredients
Section 4	First Aid Measures
Section 5	Fire Fighting measures
Section 6	Accidental release measures
Section 7	Handling and Storage
Section 8	Exposure Control
Section 9	Physical and Chemical Properties
Section 10	Stability and Reactivity
Section 11	Toxicology Information
Section 12	Ecotoxicology Information
Section 13	Disposal Consideration
Section 14	Transport Information
Section 15	Regulatory Information
Section 16	Other Information

Safety Data Sheets are the basis of important information which must be provided and explained to workers who are in contact with chemicals in order to ensure a safe use.

4.7 CLASSIFICATION AND LABELLING OF CHEMICALS

The United [Nations' Globally Harmonised System of Classification and Labelling of Chemicals \(GHS\)](#) provide a harmonized basis for globally uniform physical, environmental, and health and safety information on hazardous chemical substances and mixtures.

Among the H statements (Hazard statements) on the Safety Data you will find the correspondent pictogram according to the GHS/CLP requirements on chemical substance and mixtures (formulations) classified as hazardous.

Gas under Pressure



Explosive



Oxidizing



Flammable



Corrosive



Health Hazard



Acute Toxicity



Serious Health Hazard



Hazardous to the Environment



Additionally P statements (statements phrases) are given which indicate how the chemical shall be handled to minimize risk to the worker, as well to other people and the general environment.

4.8 CHEMICAL HANDLING

Documentation on precautions for safe handling shall be available for personnel working with hazardous chemicals. This will include protective measures, measure to prevent fire, measure to prevent aerosol and dust generation (if applicable), measure to protect the environment and general occupational advice on hygiene. Details are outlined on the Safety Data Sheet and should be used to create a procedure.

4.9 CHEMICAL STORAGE

In order to improve storage conditions and to help materials are stored under the correct and safe conditions, documentation shall be provided to personnel working with hazardous chemicals. All details on storage conditions, requirements for storage rooms and vessels, so as further storage information can be retrieved from the Safety Data Sheet.

4.10 PROCEDURE FOR SPILLS AND LEAKS

Spilled chemicals and chemical contaminated water for discharge should never be allowed to drain off into sewers or onto the ground. Therefore it is important to inspect and maintain your process equipment, storage tanks and any other devices continually as a precautionary measure.

A well-documented procedure for spills should be available in all factories who are handling hazardous chemicals. A clear definition of small spills/leaks and large spills shall be outlined.

Procedure for Small Spills and Leaks

- Availability of proper protective equipment for personnel cleaning up the spill
- Contain the spill
- Stop the leakage while using proper protective equipment and ventilation
- Clean up of small spills and leaks using appropriate absorbent material such as sawdust, compatible binders such as vermiculite, bentonite or by using mops or cloth
- Arrange proper waste disposal according to applicable laws or regulations
- Contact supervisor even for small spills and leaks

Procedure for Large Spills

- Evacuate area and call for help immediately
- Ventilate area
- Notify supervisor
- Protect yourself! Do not approach the spill area without wearing appropriate protective equipment, this may contain respiratory protection equipment and suitable protective clothing
- Contain Spill
- Block floor drains (if present) to prevent the spill from spreading further
- Pump spilled liquid materials in separate containers
- Absorb residual spilled liquid chemicals using appropriate absorbent material such as sawdust, compatible binders such as vermiculite, bentonite or by using mops or cloth and transfer into a closed container for proper disposal
- Spills may have to be reported to authorities in case quantities exceed reportable volumes (as applicable to laws or regulations)

4.11 DETERMINATION OF APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT

The main purpose of personal protective equipment (PPE) should be the protection of personnel when handling chemicals or in case of an incident occurring on site.

Information on appropriate PPE can be found in the safety data sheet for each chemical substance or formulation provided by the chemical manufacturer. This shall include:

Eyes Wear appropriate protective glasses or chemical safety goggles, if needed also full face protection such as face shield for example when transferring large amounts of chemicals. The factory shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

Skin Wear appropriate protective gloves to prevent skin exposure.
Factories shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

Clothing	Wear appropriate protective clothing to prevent skin exposure.
Respiratory	In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.

4.12 STANDARD OPERATING PROCEDURE CHEMICALS

G-Star encourages implementing standard operation procedures for critical chemical substance or formulation stored and used for production facilities. Operating procedures can also be implemented on chemical groups such as solvents, acids, oxidizing agents etc.

Such documentation shall focus on the potential and most important facts given by the chemical supplier via the safety data sheet and are essential to know for all personnel handling chemicals. Ideally such an operating procedure is a one page document structured as followed:

1. NAME OF CHEMICAL SUBSTANCE OR FORMULATION, INCLUDING TRADE NAME IF APPLICABLE

This information can be retrieved from section 1 (Identification of the substance/mixture) on the safety data sheet. Relevant information on the chemicals substance name and/or trade name is provided including associated CAS# if applicable.

2. HAZARDOUS IDENTIFICATION

This information can be retrieved from section 2 (Hazardous Identification) on the safety data sheet. The operating procedure shall show the hazardous pictograms (as described in section 4.7 in this document) associated with the spelled out H statement (s) (Hazard statement) and P statement (s) (Precautionary statement) given by the chemical manufacturer.

If known this section shall also outline the possible hazardous reactions which can occur if substance or mixtures comes into contact with other chemicals such as acids, alkaline solution or if any other reaction towards heat, light etc. may occur.

3. EXPOSURE CONTROLS AND PERSONAL PROTECTION EQUIPMENT

This information can be retrieved from section 8 (Exposure Controls and personal protection) on the safety data sheet. The operating procedure shall mention if certain exposure control measures are necessary, as an example this could be under a fume hood or by using appropriate particle/dust filter masks. Additionally this section will give details on other appropriate personal protective equipment such as gloves, eye protection and other skin protection. It is recommended that the operating procedure will indicate the applicable protective equipment by adding the applicable personal protective equipment symbols to this section.

4. ACCIDENTAL RELEASE AND FIRE FIGHTING MEASURES

This information can be retrieved from section 6 and 5 (Accidental release measure and firefighting measures) on the safety data sheet. The operating procedure shall mention for example what can happen in the event of fire, e.g. release of toxic gases, measure for workers, e.g. evacuate area, measure for firefighting, e.g. which is the appropriate extinguishing media.

For cleaning up, the operating procedure shall give details on the appropriate absorbent materials. It is also recommended that the emergency telephone number is added to this section.

5. FIRST AID

This information can be retrieved from section 4 (First Aid measures) on the safety data sheet. The operating procedure shall mention the first aid measure in case of Eye Contact, Ingestion, Skin Contact, and Inhalation. In any case workers have to seek medical attention if in contact with chemicals and/or if symptoms are present.

6. DISPOSAL

This information can be retrieved from section 13 (Disposal Consideration) on the safety data sheet. The operating procedure shall give information on how to safely dispose residues of the chemical substance and/or mixtures. The information given must be in conformance with local laws and regulations.

4.13 HOUSEKEEPING

Housekeeping, so as maintenance is key for factories when setting up a chemical management system, but also for continuous improvement of the factories performance.

All personnel shall be involved and play an active role, integrated in the daily work and general business practice. G-Star encourages suppliers to set up a behavior based performance management system. The foundation of such a system is based on simple principles.

*What they are supposed to do?
How they are supposed to do it?
How they are doing it?*

Each and every employee is encouraged to give positive, so as negative feedback by conducting daily factory walk troughs. For this purpose a checklist shall be established listing all the critical spots of the area to perform the walk through. This may contain for example; questions such as:

*Is the area clean?
Are there any chemicals stored in unlabeled containers?
Are all personnel wearing their PPE?
Are all Safety Data Sheets available in the chemical store?*

If you need further guidance on determination of a sound checklist, please contact G-Star's RSL and Environmental Specialist.

4.14 WASTES, WASTE DISPOSAL AND WASTE PREVENTION

4.14.1 WASTE AND WASTE DISPOSAL

All manufacturing operations are generally creating many different types of waste, both hazardous and non-hazardous. Therefore a differentiation in the type of waste shall be made.

Non-Hazardous Waste, such as garbage, metal scrap, residual waste from industrial operations.

Hazardous Waste, such as waste with hazardous properties (corrosive, flammable, toxic or biological characters) that can be a potential risk to human health.

Sludge from waste water treatment plants or other **discarded materials** from industrial operations. Factories must evaluate whether it shall be classified as hazardous or non-hazardous waste.

Factories need to make sure that any collected and disposed waste, and or hazardous waste is in accordance with their local regulations.

4.14.2 WASTE PREVENTION

G-Star encourages supplier to set up a waste prevention system which shall include production processes such as those using chemicals substances and chemical formulation but also for all other generated waste streams. Personnel must be informed about management procedures.

Production Processes

- Substitution of certain chemical substances or chemical formulation with less hazardous or toxic by more sustainable alternatives that generate less waste volumes
- Substitution of certain chemical substances or chemical formulation that for example allows dyeing/washing with less amount of chemicals
- Inventory control measure to avoid out of shelf life, contaminated, off-specification etc. materials which will require disposal
- Optimize procurement processes which will allow allocating chemicals to production order to minimize inventory.

Recycle and Reuse

- Packaging material shall be reduced, the use of returnable containers is recommended
- Unavoidable waste shall be collected separately to enable reuse,/recycling or to ensure safe disposal
- Establish and maintain a waste balance documentation in order to document improvements on waste reduction, reuse/recycling goals

4.15 EMERGENCY PROCEDURES

Factories shall establish, document, implement and maintain procedures to potential emergency situations and potential accidents that can have impact on worker safety or to the environment. Emergency drills shall be carried out on a frequent basis, in order to train personnel in all aspects of potential emergency situations. Where applicable also natural disasters like earth quakes, flooding, storms or hartals shall be considered as potential emergency cases.

On site installation and equipment

- Personnel educated and well trained in first aid
- Emergency medical and personal records of all employees
- First aid equipment
- Regular maintained and appropriate fire extinguishers
- Eye wash and emergency shower installations
- Absorbent materials in case of spills
- Clearly marked and unblocked emergency exits
- Emergency lighting
- Evacuation plan available and all workers are aware of
- Fire protection plan available and all workers are aware of
- Assembly points available and all workers are aware of
- Alarm system (acoustic and optical)
- Special protective equipment for hazardous material incidents

Readiness for major chemical hazards

Major accidents at production facilities can lead to major emission, fire or explosions and could put workers in serious danger but also lead to dramatic environmental disasters. Therefore prevention of accidents is key in order to guarantee a safe working surrounding.

Disaster Control Plan

- Factory shall be able to show that the facility is prepared to face natural hazard incidents (e.g. earthquakes, flooding, etc.)
- Factory shall be able to demonstrate that major accident hazards have been identified
- Factory shall be able to demonstrate that necessary measures have been taken to prevent such accidents.

Emergency plan

- Confine and control incidents
- Communication necessary information to the authorities

SECTION 5 – WASTE WATER DISCHARGE GUIDELINE

5.1 INTRODUCTION

G-Star recognizes that in the apparel and footwear industry, water efficiency is a critical aspect of sustainable and environmental conscious manufacturing. A lot of manufacturing processes use water and generate waste water that will require treatment before reusing or discharge. Untreated waste water from industrial operations harms ecosystems and causes health and safety problems for workers and the surrounded communities.

Requirements of local laws and regulations have to be fulfilled, however this guidance shall provide standards applicable globally and in some cases stricter than those limits defined by local authorities. As G-Star committed to zero discharge, the waste water guidance shall help to bring our industry to the next level of a cleaner and more sustainable production. By using less hazardous and more sustainable chemistry in combination with an efficient, well maintained running waste water treatment plant, we can reach the targets as described in the chapter 5.3 below.

5.2 METHODOLOGY

Within production facilities we differentiate between industrial process water (water stream from production operations) and domestic water (non-process related waste water). This waste water guidance focuses entirely on industrial process water.

A waste water treatment installation must insure that the treatment of the waste water is of sufficient quality. Personnel who operate the waste water treatment (3rd party or factory itself) shall have appropriate knowledge and technical equipment. Dilution of waste water is strictly forbidden, so as the discharge of not used residual amounts of chemical substances and formulations.

Sludge must be properly handled and shall be managed. Disposal shall ensure that harmful substances are not transferred to humans and environment. Therefore landfill is no preferred option.

Two scenarios of waste water treatments are applicable at production sites.

Direct Discharged

Treated waste water which is directly discharged into a river or other receiving body. Usually this regulated under national pollutant discharge legislations and has to comply with these requirements. A valid permit from legal authorities is mandatory for direct discharged water.

Indirect Discharged

Waste Water which is sent to an industrial or publicly owned waste water treatment plant. In case waste water is discharged to a 3rd party waste water plant (municipal sewage plant) a verification of the external treatment, including operating conditions and compliance to local laws and regulations is mandatory.

5.3 DISCHARGE WASTE WATER LIMITS

As a contributor, we G-Star Raw are committed to advancing towards the goal of eliminating the industrial release of hazardous chemicals into the environment, as outlined in the [Joint Roadmap](#).

The ZDHC Programme recognises the value of addressing hazardous substances that may be present deep within the value chain and not just those substances that could be present in finished goods. ZDHC is focused on the management of chemical inputs and validation of those chemical inputs by testing wastewater discharges.

The ZDHC Wastewater Guidelines was developed in collaboration with multiple brands, non-governmental organizations, universities, and technical experts. It aligns all ZDHC contributors to a unified set of expectations related to sampling, test methods, pass/fail criteria, testing frequency and disclosure.

For Waste Water Discharge Testing and its associated requirements, limits and alignment with the industry, G-Star has adopted the ZDHC Waste Water Guideline.

[ZDHC Wastewater Guideline](#)

5.4 SAMPLING POINT LOCATION AND METHODS

Sampling points shall be specified as following, in order to fulfill the requirements. The specification of the actual sample point will determine the actual, physical sampling location, taking into consideration physical and safety limitations. Factories shall develop a facility-specific sampling procedure, documenting using photographs the location of each of the sampling points.

Freshwater

Sample incoming fresh water at a point to pretreatment or purification of the water

Raw waste water

Sample raw waste water at point prior to on-site treatment

Ensure waste water sampling is sufficiently representative of the waste water being discharged from the facility
If an equalized basin exists prior to on-site treatment, sample from the pipe between the basin and the first steps of waste treatment

Treated waste water

Sample treated waste water at the final monitoring point before the waste water leaves the boundary of the facility

Sampling Methodology

- Samples shall be collected as grab samples following the general guidance in Standards Methods for Examination of Water and Wastewater, 21st edition, Method 1060, Collection and Preservation of Samples.
- Consult ISO 5667-1, 3, 10, 13 and 15 Water quality- Sampling – Guidance for the preservation and handling of water samples
- Samples shall be taken by a third-party
- Composite sampling shall be used (manual or automatic, automatic is preferred) with a maximum time duration of 2 hours between discrete composite samples
- In order to ensure representative results, samples shall be taken during normal business operations
- In no circumstances shall samples be taken during times when the production process is not running or the waste water is diluted due to heavy rainfall etc.
- Composite sampling should occur for no less than eight hours, a 24 hour composite sample is preferred
- During a sampling regimen, composite sampling should occur simultaneously at the designated sampling location

5.5 DATA REPORTING AND ANALYSIS

G-Star reserves its right to request discharge water analysis on a regular basis from its suppliers. This will be in line with our Detox commitment and will help to measure our progress towards zero discharge 2020.

It is our aim that we align to the ZDHC and participate in establishing a unified reporting structure to simplify and enable efficiency in reporting results to regulatory authorities, brands and other relevant platforms. Suppliers will own their respective water and waste water reports and must authorize uploading or sharing of this data.

SECTION 6 – EMISSION TO AIR, NOISE AND WASTE

6.1 AIR EMISSIONS

Emissions to air are not always visible, but still important for the environment and specifically for their contribution to the greenhouse effect.

Air Emissions can occur from a wide spectrum of industrial activities such as stack emissions, power generation/boiler house or from production processes like application of solvents in production lines. Reduction of air emissions and maintenance of an odor free atmosphere shall be the goal of achieving best possible air quality.

G-Star expects suppliers to establish and maintain an inventory list of all emission ports. The aim is to ensure to following:

- Factories are aware of the materials and activities that can cause possible emissions to air, including both greenhouse gases and other emissions causing damage to people and to the environment
- Factories take appropriate action to control and reduce emissions in normal working situations
- Factory takes appropriate action to control and reduce risks and effects of possible calamities with emissions

G-Star does not set specific limits, however for parameters like NOX, SO₂, CO and dust the local requirements must be fulfilled. The goal shall be to support the use of low emission fuels, e.g. natural or liquid pressured gas. In case heavy oil or coal is used, particle filters or other systems to minimize SO₂ emissions shall be installed.

In order to comply with this standard, factories shall have the following documentation in place:

- Factories must have the necessary permits for air emissions and/or report its air emissions to the relevant authorities as required by law
- Factories should keep records of the volumes and types of air emissions
- Factories should have an action plan to control and reduce air emissions
- Factories should implement best practice technologies to avoid and reduce the air emissions.

6.2 NOISE

Nuisance is a negative impact for people in and around the factory and a disturbance for the environment; it causes a negative reputation and complaints.

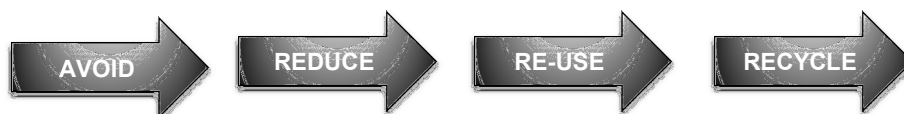
Noise emission levels set by the local authorities are mandatory. Furthermore, the neighborhood complaints shall also be respected. Please also refer to chapter 4.5.2.3 Noise regarding occupational health concerns.

G-Star expects supplier to ensure and comply with the following:

- Factories shall be aware of the nuisance produced and identify the sources (e.g. machinery, vibrations)
- Factories shall take appropriate action and reduces nuisance to acceptable limits
- Factories shall keep records of complaints and corrective actions taken
- Factories shall implement best practices to avoid and reduce nuisance

6.3 WASTE

G-Star urges the need to prevent waste wherever possible. Standard operating procedures for waste management shall be established at production sites and follow the following principle.



G-Star expects supplier to ensure and comply with the following:

- Comply with country and/or local regulations for waste storage and transport shall be ensured
- Packaging material shall be reduced, the use of returnable containers is strongly recommended
- Unavoidable waste shall be collected separately to ensure re-use/recycling or safe disposal
- Supplier should set targets to reduce the amount of wastes produced and/or set targets to recycle waste internally
- Supplier shall segregate different waste streams (textile, paper, glass, plastic, metals, wood/pallets, and hazardous waste) at a minimum in accordance with local and national regulations
- Hazardous waste shall be stored separately from non-hazardous waste; storage areas for hazardous waste shall be defined
- Waste balance shall be created on a yearly basis including an overview on waste types, quantities etc. this document shall also include third party protocols from waste management companies
- Sludge from waste water treatment shall not be used in agriculture
- Workers shall be informed on the binding waste management procedures

6.4 SOIL

Contamination to soil with chemicals shall be avoided in any case; therefore underground tanks and pipes must be in good condition and controlled frequently.

Sources of contamination may be due historic activities of production facilities or due to recent activities, which may include accidents or poor handling and storage of hazardous chemicals or waste. Contamination of land is of high concern as it is a direct and serious risk to human health and the environment. Furthermore financial liabilities may occur to factory owners.

Prevention and control is essential, therefore factories shall define a clearly written procedure for emergency situations in case of loss of primary control. For more information, please also refer to chapter 4.10 Procedure for Spills and Leaks.

Information provided in this document is valid as of March 2018. Changes, modifications and/or actualizations will be notified from to time and will make part of this document as such date.

For any questions or further information please contact sara-fessler@g-star.com or +41 61 638 21 15