

Content-9: Introduction to MRSL, RSL and Chemicals of Concern

Orientation

What can this unit help you with?

You may use this unit if you

- Want to understand what MRSL, RSL are;
- Want to know about chemicals of concern.

Intended results of the unit

- Students can differentiate between MRSL and RSL;
- Students can be aware of the chemicals of concern.

Input

For restricting the use of certain chemicals in the manufacturing process, and/or controlling the amount of chemicals that can be present in finished products or materials, there are several different chemical lists available. To select sustainable chemicals, we need to understand the purpose, function, and applicability of these chemical lists and comply with them. In this learning unit, we will learn about MRSL, RSL and chemicals of concern.

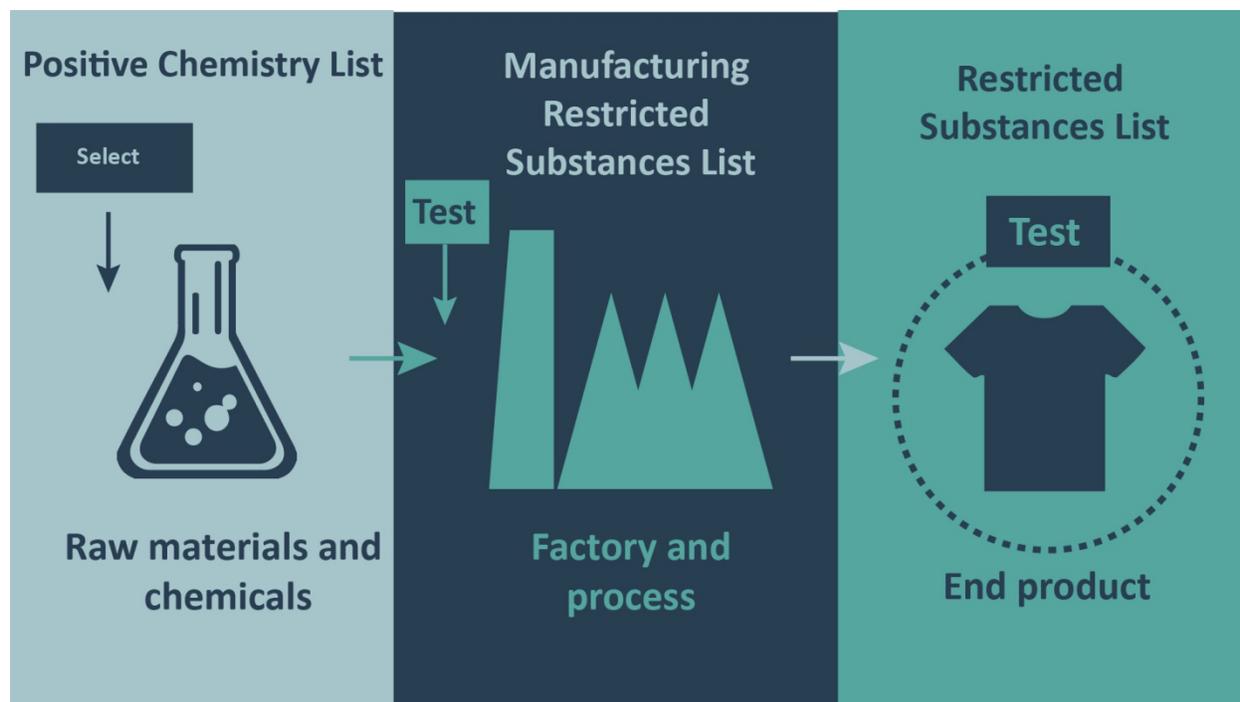


Figure 1: MRSL and RSL. Photo courtesy: Kazi Farhan Hossain Purba.

Manufacturing Restricted Substances List (MRSL)

Manufacturing Restricted Substances List (MRSL) is a list that focuses on substances used in the production process or in the manufacturing facility. It lists chemicals that are restricted from being used in the manufacturing of products. To test against an MRSL, chemicals need to be tested before they are used on-site.

There can be several versions of MRSLs. The brands may have their own MRSL or suggest an established industry MRSL like the bluesign® system substance list (BSSL) or the Zero Discharge of Hazardous Chemicals (ZDHC) MRSL.

Restricted Substances List (RSL)

RSLs determine acceptable amounts of substances that can be present in finished materials or products. Customers can utilize their own RSL or adopt an industry-established RSL such as the bluesign® system substance list (BSSL).

The AFRIM Group, an industry collaboration, also publishes a publicly available RSL and RSL toolkit that may help understand and manage RSL requirements.

Differences between MRSL and RSL

The MRSL is a valuable tool for procuring chemical formulations that help suppliers meet sustainability targets.

An MRSL targets all chemicals used in the manufacturing process of a product, while an RSL targets only the chemicals that end up in the finished product. RSLs are important to ensure compliance with legislation; however, under an RSL, a garment can still be produced using harmful chemicals or washed until legal RSL limits are achieved. An MRSL does not allow for this as all chemicals used in the entire manufacturing process are required to be controlled. Put simply; an MRSL is more comprehensive than an RSL as it goes beyond just restricting substances found in the end product.

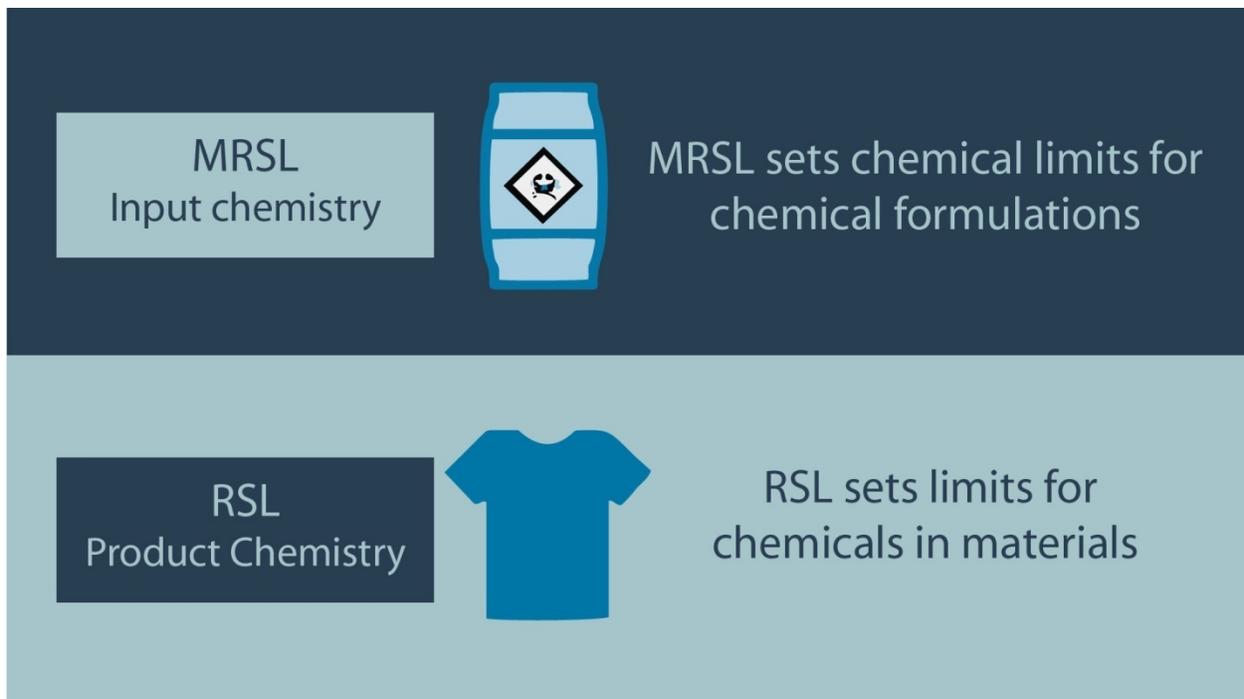


Figure 2: Differences between MRSL and RSL. Source: Resource Efficient Management of Chemicals in Textile and Leather Sector Companies.

The Purpose of Different MRSL and RSL

The industry has a strong interest to work towards achieving zero discharge of hazardous chemicals. For example, a strong chemical management system is required by REWE Group, Tchibo and ZDHC. REWE Group and Tchibo have defined their specific RSL/MRSLs, which are updated on an annual basis.



Figure 3: The purpose of different MRSL and RSL. Source: Kazi Farhan Hossain Purba.

The intent of the REWE Group MRSL is to define which chemicals we regard as hazardous and shall therefore not be used in the supply chain. These chemicals need to be eliminated in accordance with the indicated timelines. The MRSL also encompasses the REWE Group RSL and hence defines next to test methods and limit values for input chemicals, wastewater and sludge.

The intent of the Tchibo MRSL is to regulate the use of hazardous substances in chemical inputs and emissions of the same from production. The RSL is to regulate chemical residues (from production) in ready-made items after production.

The intent of the ZDHC MRSL is to provide brands and suppliers with a harmonized approach to managing chemicals during the processing of raw materials within the apparel and footwear supply chain.

Chemicals of Concern

Chemicals that affect our health and environment can be present in our daily lives as they can be used in factories to produce our garments and other products. These hazardous chemicals are called chemicals of concern. These chemical groups are listed in the MRSLs and RSLs to know their permissible limits and regulate their presence. Greenpeace, a global NGO, is campaigning to stop industry poisoning our water with hazardous, persistent and hormone-disrupting chemicals. The Detox campaign challenges top brands to make amends by working with their suppliers to eliminate all hazardous chemicals across their entire supply chain and the entire life-cycle of their products. ZDHC MRSL has chemical substances which are subject to a usage ban. All the international brands are on a mission to restrict the chemicals of concern.

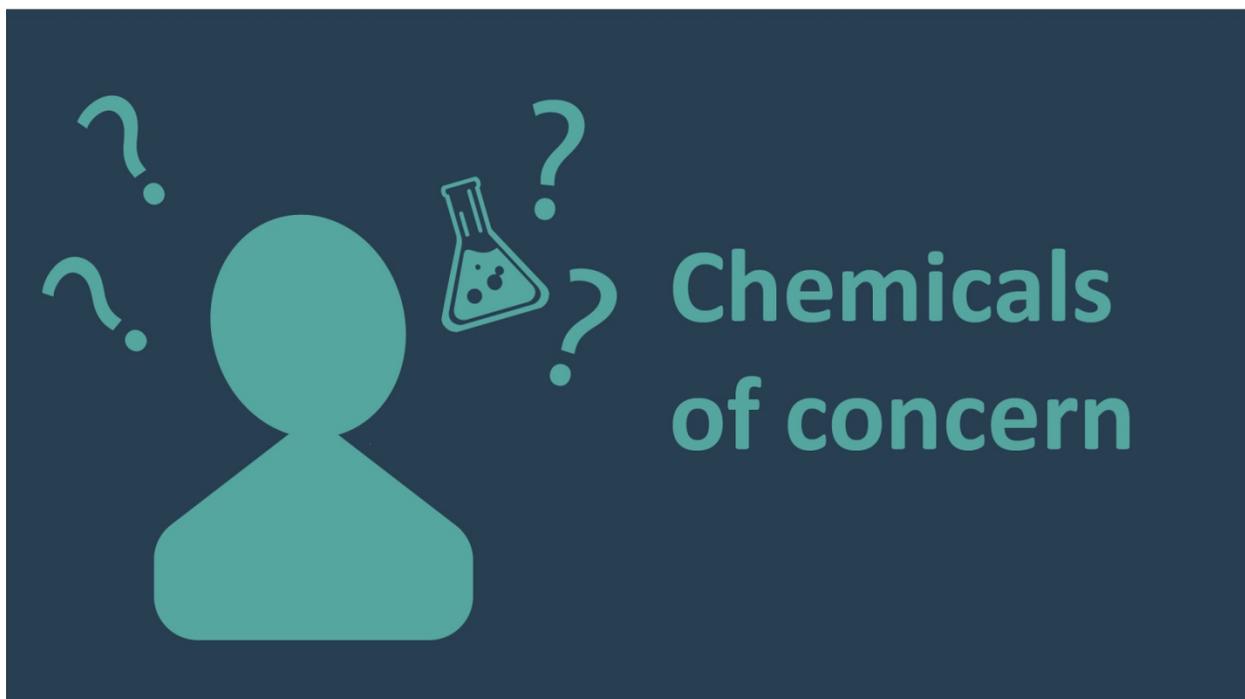


Figure 4: Chemicals of concern. Courtesy: Kazi Farhan Hossain Purba.

The substances of concern-detox 11 priority chemical groups are:

1. Phthalates (ortho-phthalates)
2. Brominated and Chlorinated flame retardants
3. Azo dyes
4. Organotin Compounds (e.g., TBT)
5. Chlorobenzenes
6. Chlorinated Solvents

7. Chlorophenols
8. Short-Chain Chlorinated Paraffins (SCCPs)
9. Heavy Metals (cadmium, lead, mercury, chromium (VI))
10. APEOs/NPEs
11. Perfluorinated Chemicals (PFCs)

All of these are chemicals of concern, and their presence in the products has to be monitored.

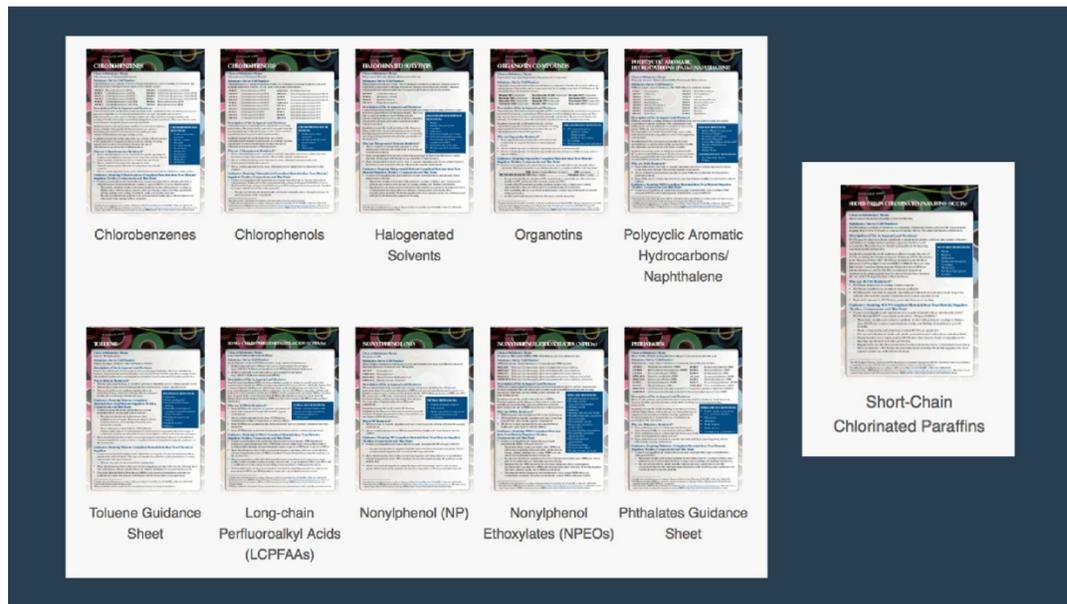


Figure 5: ZDHC Guidance Sheet for each chemical group. Source: ZDHC Guidance Sheets from Resource Efficient Management of Chemicals in Textile and Leather Sector Companies training materials.

There is also a similar list of chemical groups. According to ZDHC MRSL, the chemical groups that are subject to usage ban are:

1. Alkylphenols/Alkylphenol Ethoxylates (AP/APEOs)
2. Chlorobenzenes & Chlorotoluenes
3. Chlorophenols
4. Dyes, including Azo, Navy Blue Colourant, Carcinogenic and Disperse (Sensitising) Dyes
5. Flame retardants
6. Glycols
7. Halogenated Solvents
8. Organotin Compounds

9. Polycyclic Aromatic Hydrocarbons (PAHs)
10. Perfluorinated and Polyfluorinated Chemicals (PFCs)
11. Phthalates
12. Heavy Metals
13. Volatile Organic Compounds (VOCs).

Conclusion

For protecting human health and the environment, we need to be aware of the chemicals of concern and abide by MRSLs and RSLs. The purpose of it is to avoid or control substances used in textile production processes to the final product. Complying with MRSL and RSL can help us go one step ahead to zero discharge of hazardous chemicals.

Didactical Elements

Quizzes and Self-Tests:

True-False

1	The RSL is a valuable tool for procuring chemical formulations that helps suppliers gain profit.	
	<ul style="list-style-type: none">▪ Correct▪ False	False
2	An MRSL is more comprehensive than an RSL as it goes beyond just restricting substances found in the end product.	
	<ul style="list-style-type: none">▪ Correct▪ False	Correct
3	A garment can still be produced using harmful chemicals or washed until legal RSL limits are achieved.	
	<ul style="list-style-type: none">▪ Correct▪ False	Correct
4	The intent of the ZDHC MRSL is to provide brands and suppliers with a harmonized approach to managing chemicals during the processing of raw materials within the apparel and footwear supply chain.	
	<ul style="list-style-type: none">▪ Correct▪ False	Correct
5	To test against an RSL, chemicals need to be tested before they are used on-site.	
	<ul style="list-style-type: none">▪ Correct▪ False	False

Choose Multiple:

1	According to ZDHC MRSL, the chemical groups that are subject to usage ban are: (Choose multiple)	
	<ul style="list-style-type: none"> ▪ Alkylphenols/Alkylphenol Ethoxylates (AP/APEOs) ▪ Alkanes ▪ Chlorobenzenes & Chlorotoluenes ▪ Chlorophenols ▪ Alkyl group ▪ Dyes, including Azo, Navy Blue Colourant, Carcinogenic and Disperse (Sensitising) Dyes ▪ Phenol ▪ Flame retardants 	<p>Answer:</p> <ul style="list-style-type: none"> ▪ Alkylphenols/Alkylphenol Ethoxylates (AP/APEOs) ▪ Chlorobenzenes & Chlorotoluenes ▪ Chlorophenols ▪ Dyes, including Azo, Navy Blue Colourant, Carcinogenic and Disperse (Sensitising) Dyes ▪ Flame retardants

Sorting tasks:

Sort the words to the correct sentences:

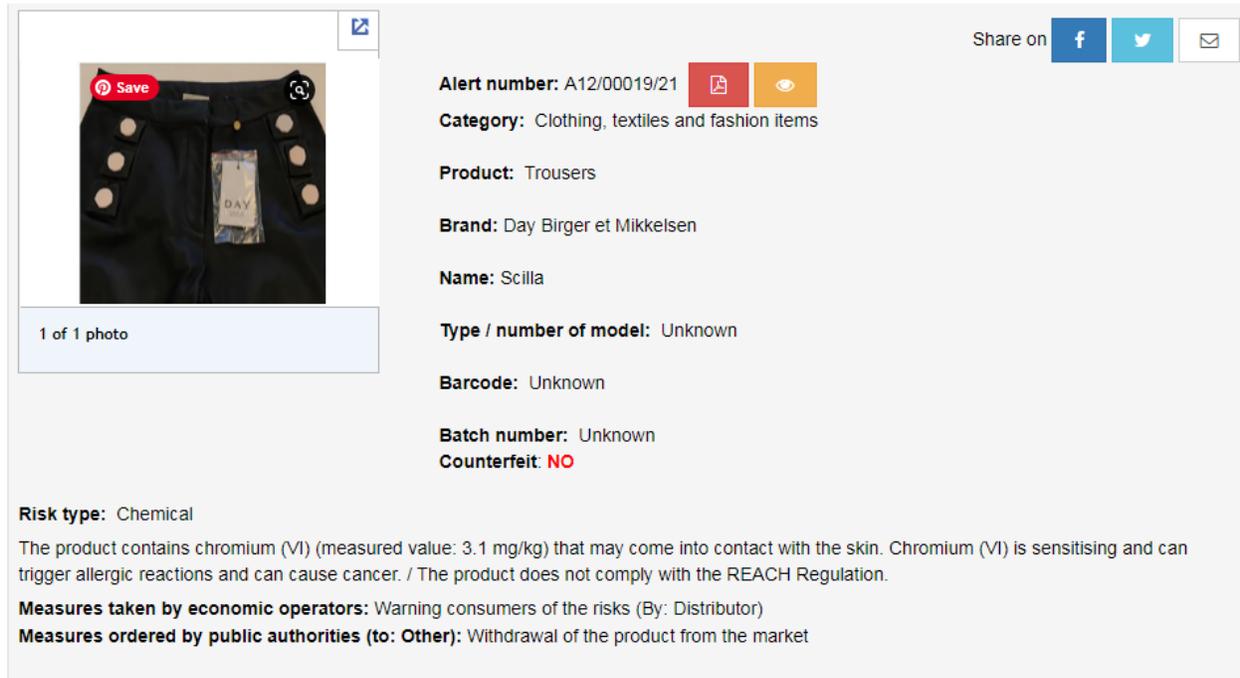
brands	hazardous	resource	established	intent	chain
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1. The ___ of the REWE Group MRSL defines which chemicals we regard as ___ and which shall therefore not be used in the supply___.
2. The___ may have their own MRSL or suggest an ___ industry MRSL like the bluesign® system substance list (BSSL) or the Zero Discharge of Hazardous Chemicals (ZDHC) MRSL.

Answers:

1. intent, hazardous, chain;
2. brands, established.

Exercise



The screenshot shows a product alert interface. On the left, there is a photo of a pair of dark trousers with a 'Save' button and a '1 of 1 photo' indicator. On the right, the following details are listed:

- Alert number:** A12/00019/21
- Category:** Clothing, textiles and fashion items
- Product:** Trousers
- Brand:** Day Birger et Mikkelsen
- Name:** Scilla
- Type / number of model:** Unknown
- Barcode:** Unknown
- Batch number:** Unknown
- Counterfeit:** NO

Risk type: Chemical

The product contains chromium (VI) (measured value: 3.1 mg/kg) that may come into contact with the skin. Chromium (VI) is sensitising and can trigger allergic reactions and can cause cancer. / The product does not comply with the REACH Regulation.

Measures taken by economic operators: Warning consumers of the risks (By: Distributor)

Measures ordered by public authorities (to: Other): Withdrawal of the product from the market

Figure 6: Image source: European Commission, Safety Gate: Rapid Alert System for dangerous non-food products.

Eastside Ltd. is in the garment manufacturing business with world reputed brands for a long time. But recently, their products are failing in the RSL test and getting listed on RAPEX for the presence of chromium (vi). This is greatly hampering their business by downgrading their image to the buyers. To keep their business and preserve their goodwill, they desperately try to find out why this RSL failure is occurring. For the company, you have to do the following tasks:

- Figure out the root causes
- Suggest how they can use MRSL and/or RSL to solve the problem.

Hotspots

Which one targets only the chemicals that end up in the finished product?

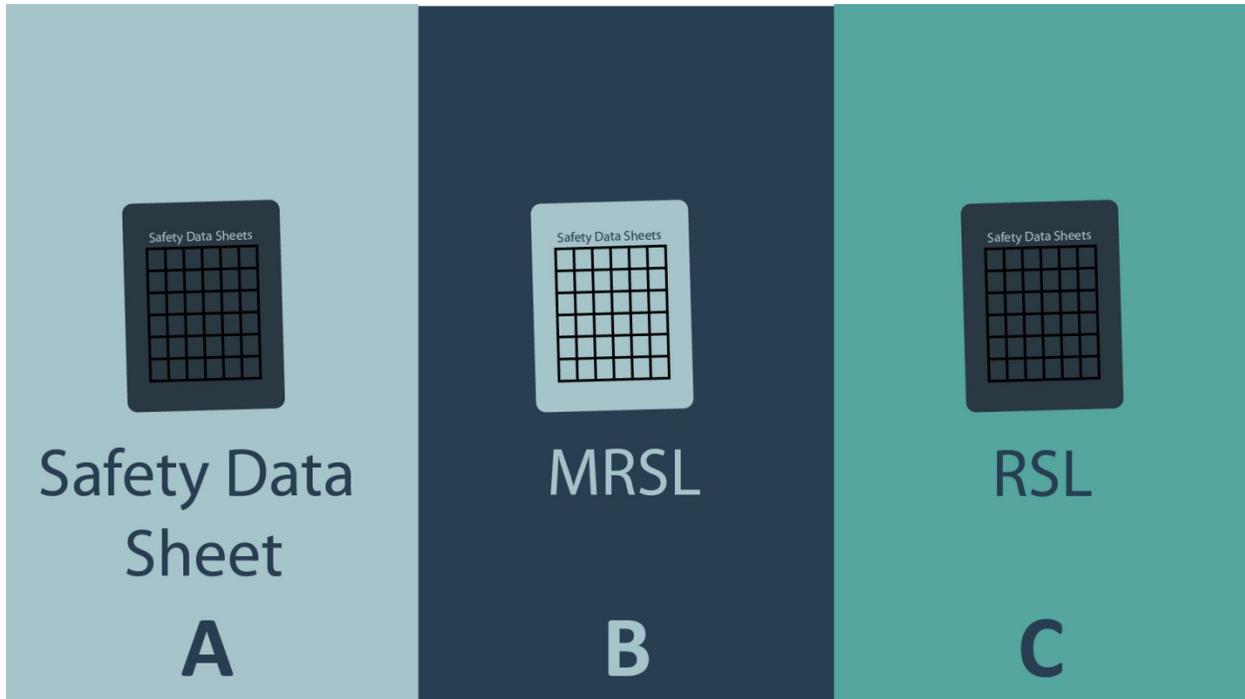


Figure 7: Hotspot. Courtesy: Kazi Farhan Hossain Purba.

Answer: C.

References/Additional Literature/Links

1. To know more about positive chemistry, RSL and MRSL, you can go to this link: <https://outdoorindustry.org/chemical-manuals/1/en/topic/chemical-lists>
2. To check ZDHC MRSL (Manufacturing Restricted Substance List), you can visit this link: <https://mrsl.roadmaptozero.com/>
3. bluesign® system substance list (BSSL) or RSL can be found here <https://www.bluesign.com/en/business/criteria>
4. To check AFIRM RSL (Restricted Substance List), you can visit this link: <https://www.afirm-group.com/afirm-rsl/>
5. More information on ZDHC Guidance Sheet for each chemical group can be found from this link: <https://www.roadmaptozero.com/documents?locale=en>
6. To know about regulation and compliance framework, you can visit this link: https://www.sia-toolbox.net/sites/default/files/03_regulation_and_compliance_framework_en.pdf

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