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Definitions and guidelines regarding supplier reporting in the environmental field

Table of Contents

| | Page |
|--|-------------|
| 1 Introduction | 2 |
| 1.1 Scope | 2 |
| 2 Reporting requirements for suppliers | 2 |
| 2.1 Full Material Declaration | 3 |
| 2.2 Environmental and Health Hazardous Materials Report | 4 |
| 2.3 Environmental Assurance Plan | 5 |
| 2.4 Environmental Product Declaration | 5 |
| 2.5 Disposal Plan | 6 |
| 3 Standards | 7 |
| 3.1 IPC standards for information gathering | 7 |
| 3.1.1 IPC-1752A Material Declaration Management Standard | 8 |
| 3.2 IEC 62474 Material Declaration for Products of and for the Electrotechnical Industry | 9 |
| 4 Definitions | 10 |
| 4.1 Definitions of declaration categories | 13 |
| 5 Change History | 13 |

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4

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1 Introduction

The purpose of this document is to provide a guideline to Saab's supply chain regarding common definitions and reporting requirements that Saab communicates when purchasing components, subsystems and products.

This document can also be used as supporting information to supplier questionnaires in conjunction with Saab's supplier assessment process or as supporting information to the procurement process where applicable.

1.1 Scope

Materials and substances declaration has been established in various industry sectors and companies to obtain product-related substance data and material data from the supply chain. Downstream companies then use and interpret this data to manage related risks for product compliance and supply chain obsolescence.

In order to be optimally efficient in gathering necessary data, while minimizing supplier impacts, declaration process standards and tools have been developed that specify the mechanical aspects of data gathering such as data elements (and related formats, units and quality requirements) and information data transfer protocols. To harmonize the data gathering Saab has implemented the use of standard IPC-1752A as a base for supplier reporting of product-related substances.

In other cases, that Saab requires other specific environmental documents and reports from supplier, the following definitions and its contents shall be followed in accordance with this document.

2 Reporting requirements for suppliers

Saab requires a "Full Material Declaration" according to IPC-1752A Class D from supplier, which means that all constituent substances in the product or article shall be reported.

Reporting of substances according to industry-specific standards normally fulfils the requirements in RoHS and REACH. However, to avoid uncertainties such as a substance that has been proposed for regulation but not has been incorporated in the standards, the criteria shall be for reporting full disclosure of all substances of the specified component.

If no Full Material Declaration(s) can be provided, a material declaration of hazardous substances in accordance with [GMS-0110](#) List of Hazardous Chemical Substances shall be delivered instead, which correspond to IPC-1752A Class C.

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4

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For substance reporting of subsystems and products, when Saab does not request a “Full Material Declaration”, the supplier shall instead provide an “Environmental and Health Hazardous Materials Report”, for more information about these reporting requirements see chapter 2.2.

More information and details about Saab environmental policy and requirements on suppliers and its references (e.g. [GMS-0110](#) List of hazardous Chemical substances) can be obtained from the Saab Supplier Portal (<https://saabgroup.com/about-company/saab-supplier-portal/>).

2.1 Full Material Declaration

Material declaration is a documentation format for reporting of substances and materials, which a component, sub-unit and/or product (article) contain. The mass and were the substances are found shall be stated in the declaration.

Additional information that also can be available in a material declaration is about the particular product, sub-units and/or compliance with laws and legislation (i.e. regulated substances such as RoHS).

There are several industry-specific material declaration standards regarding reporting of chemical substances in products and components.

These standards have been developed to satisfy the needs of their users, e.g. automotive and electronic industries and sectors. Saab has adopted to use the IPC-1752A to communicate and collect materials and substance data through the supply chains in a consistent and repeatable manner. This standard is primarily used for reporting of articles and components.

Saab requires that suppliers use the industry-specific IPC-1752A for reporting of material declarations, see Table 1 for the standard’s different material declaration classes. This standard use a common XML format for reporting and Saab prefers this format at delivery of the material declarations.

Table 1: Material Declaration Classification.

| IPC-1752A Class | Description | Declaration type | Detailed requirements | Saab’s requirements and definitions |
|-----------------|---------------------------------|------------------|---|--|
| A | Reporting in query/reply format | Reply | Supplier provides responses to standard queries and/or optional custom queries format | <ul style="list-style-type: none"> • Statement for EU RoHS Compliance • Statement for REACH Compliance |
| B | Material class reporting | Material Class | Supplier states the amount of different classes of materials within a product | <ul style="list-style-type: none"> • Not applicable within Saab |

Issue

4

Document ID

GMS-0248

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| IPC-1752A Class | Description | Declaration type | Detailed requirements | Saab's requirements and definitions |
|-----------------|--|---|--|--|
| C | Substances categories reporting at the product level | Substance category compliance declaration | Supplier provides mass and/or concentration of substance category at the product level if the above thresholds | <ul style="list-style-type: none"> Reporting against GMS-0110 REACH Article 33 |
| D | Substances reporting at the homogeneous material level | Full substances disclosure | Supplier provides location, mass, substances at homogeneous material level | <ul style="list-style-type: none"> Full material declaration |

2.2 Environmental and Health Hazardous Materials Report

Saab has for substance reporting of subsystems and products adopted an aggregated reporting scheme to be used instead, called "Environmental and Health Hazardous Materials Report".

The purpose with an Environmental and Health Hazardous Materials Report is to provide and report health and environmentally hazardous substances and materials in the product, including components and chemical products, and in some cases for chemical products to be used for maintenance.

An Environmental and Health Hazardous Materials Report shall at minimum contain the following headlines and contents, if there is relevant information to the related topics:

- system description and definition of the product
- referenced regulations, requirements and documents
- product analysis
 - hazardous substances in products and services (placement, its location and weight) in accordance with [GMS-0110](#)
 - if applicable, hazardous substances used for maintenance of the products and services (placement, its location and weight) in accordance with [GMS-0110](#)
 - substances restricted (substances which must not be used) in [GMS-0110](#), if any, with a justification

Issue

4

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- compliance statement
 - product statement for hazardous substances according to Saab's requirements
 - REACH Article 33 Declaration
- product statement may relate to the following requirements and legislation, if relevant:
 - conflict minerals
 - radioactive materials
 - biocide(s)
 - RoHS
 - and other declarable substance lists.

2.3 Environmental Assurance Plan

Saab, may in some cases, require transparency and follow-up of the supplier's environmental work, this follow-up will, among other things, be done against a plan called "Environmental Assurance Plan".

A Environmental Assurance Plan shall describe how the environmental work or environmental management will be applied in the supplier's commitment to Saab and what activities are carried out to ensure and strengthen that legal requirements, internal requirements and Saab's environmental requirements are met.

In addition to this, the Environmental Assurance Plan can also contain relevant information, among other things, how the environmental work is organized, environmental competence, how environmental aspects are handled in product development, work with product selection and environmental related activities in the project.

2.4 Environmental Product Declaration

The purpose of an Environmental Product Declaration is to provide Saab information about a product's or system's environmental performance and environmental impact.

An Environmental Product Declaration (EPD) is an independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products.

Issue

4

Document ID

GMS-0248

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The overall aim of an EPD is to provide relevant and verified information to meet the various communication needs. An important aspect of EPD is to provide the basis for a fair comparison of products and services by its environmental performance. EPDs can reflect the continuous environmental improvement of products and services over time and are able to communicate and add up relevant environmental information along a product's supply chain.

To produce an environmental product declaration, requires detailed information on, for example, the product's contents such as the materials, substances, chemical products, mass and the types of components.

In addition to the hazardous substances identified, the environmental product declaration shall include data on emissions, noise and facts about energy consumption/efficiency, etc.

Environmental Product Declaration is usually based on ISO14021-14025 standards. Normally Saab requests an Environmental Product declaration (EPD) type 3, following ISO 14025 standard.

2.5 Disposal Plan

The purpose of a disposal plan is to provide all information required to dispose a component and product in a way that minimises effects on people's health and the surrounding environment. The disposal plan provides supporting information to the risk analysis that precedes the final phase out of the article or component.

The disposal plan shall provide information on substances, components and materials in the component and product that present a risk to health, safety and/or the environment. It shall also include information that emphasizes reuse and recycling of the article or component and its sub-components.

Issue

4

Document ID

GMS-0248

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3 Standards

There are several Business to Business (B2B) standards on the market today, which support development, documentation, reporting and exchange of material declarations by electronic means. The most common used standards are IPC-1752A and IEC 62474 standards.

There are some differences between the standards regarding reporting and how to use them, see table below.

Table 2: Standards comparison overview.

| | IPC-1752A AMD 3 | IEC 62474 |
|--|---|---|
| LATEST ISSUE | Version A (2.0) Amendment 3 | Current Edition 1, new edition end of 2018 |
| SUBSTANCE LIST | REACH Candidate List and Annex XVII. RoHS and IEC 62474 Lists. Exemption Lists (RoHS and ELV) | IEC 62474 (online in database) Declarable substance groups and declarable substances. Reference substances for substances groups. Material classes |
| TOOLS AND ELECTRONIC DEFINITION | XML Schema IPC-1752-2.0 XSD (includes IPC1751A) | XML Schema XSD (version X7.00) |
| BRIEF DESCRIPTION | Material and substances reporting for EEE products. Can be used for reporting for other types of product categories | Material and substances reporting for EEE products. Consist of two parts. Part 1: The document part of the standard describes material declaration requirements. Part 2: The database which specifies information that may need to be updated on a timely basis. |

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3.1 IPC standards for information gathering

IPC, the Association Connecting Electronics Industries, is an organization whose aim is to standardize the assembly and production requirements of electronic equipment and assemblies. IPC standards are used by the electronics manufacturing industry.

IPC-175x family of standards establishes a standard reporting format for data exchange between supply chain participants and includes standards for materials declarations, conflict minerals and laboratory reports.

Issue

4

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GMS-0248

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3.1.1 IPC-1752A Material Declaration Management Standard

IPC-1752A is the materials declaration standard for companies in the supply chain to share information on materials in products. The standard is supported by an XML schema and a data model.

This standard is intended to benefit suppliers and their customers by providing consistency and efficiency to the material declaration process. The standard is not a compliance guide.

IPC-1752A was developed by the electronics industry for supporting the EU RoHS regulation and has been extended to support EU REACH and other similar lists applicable to the electronic industry or other sectors. IPC-1752A is designed for regulatory compliance declaration against EU RoHS with either a product statement (class A) or a more accurate declaration against all prohibited substances classes (class C); it also supports material and substance declarations up to a full declaration (class D).

This standard defines an XML data structure to facilitate the exchange of data regarding the material content of products. This data can be used by the supply chain to assess compliance with product-related regulations such as RoHS and REACH.

The Appendices to the standard are updated after each new Candidate List is published and allow reporting against the full list of SVHC on any version of the Candidate List.

Table 3: Material declaration classification.

| IPC-1752A Class | Description | Declaration type | Detailed requirements |
|-----------------|--|---|--|
| A | Reporting in query / reply format | Query / Reply | Supplier provides responses to standard queries and/or optional custom queries format |
| B | Material class reporting | Material Class | Supplier states the amount of different classes of materials within a product |
| C | Substances categories reporting at the product level | Substance category compliance declaration | Supplier provides mass and/or concentration of substance category at the product level if the above thresholds |
| D | Substances reporting at the homogeneous material level | Substances composition disclosure | Supplier provides location, mass, substances at homogeneous material level |



Issue

4

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GMS-0248

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3.2 IEC 62474 Material Declaration for Products of and for the Electrotechnical Industry

IEC 62474 is an International Standard for the exchange of material composition data and provides requirements for material declarations for the electrical and electronics industry. It establishes requirements for reporting of substances and materials, standardizes protocols, and facilitates transfer and processing of data.

It is linked to a database of substances which shall be reported in the material declaration if they are present above threshold levels specified in the database.

The database includes only the Substance of Very High Concern (SVHC) on the Candidate List which IEC 62474 Edition 1 has identified as likely to be present in electrical and electronic equipment.

IEC 62474 edition 1 requirements designed to declare electrical and electronic equipment (EEE) against the substances & groups list. The edition 2 will support any substances lists.

Issue

4

Document ID

GMS-0248

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4 Definitions

The following definitions are used by Saab.

Article (according to Reach)

- An object which during production is given a special shape, surface or design which determines its function to a greater degree than its chemical composition.

Component

- A component that fulfils the requirements in an established international or national standard or specification.
- Component is a product, or an article, with or without:
 - a) revision, and
 - b) sub-structure and
 - c) purchased to a manufacturer part number.

Environment

- Definition of environment according to ISO 14001: surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation.
- Surroundings in this context extend from within an organization to the global system.

Environmental analysis

- Investigations and minor analyses focusing on environmental considerations. Can be about noise, emissions, hazardous substances, environmental impact, substitution and legislation reviews etc.

Environmental assurance

- All planned and systematic activities implemented within the management system, and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for environment.

[GMS-0110](#) List of Hazardous Chemical Substances

- The purpose of the list is to ensure that the Saab Group is in compliance with existing and anticipated environmental legislation, customer requirements and also to fulfil the intentions of our environmental policy. The list identifies substances or groups of substances which use is banned or restricted.

Issue

4

Document ID

GMS-0248

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- 1) Physical components in a system.
- 2) Electronic hardware including configuration file for Programmable Logic Device (PLD).

Hazardous chemical substance

- A substance that poses a risk to human health or the environment by.

Homogeneous material

- One material of uniform composition throughout or a material, consisting of a combination of materials, that cannot be disjointed or separated into different materials by mechanical actions, such as unscrewing, cutting, crushing, grinding or abrasive processes.

Intentionally added

- Deliberately used in the formulation of a chemical product or material where its continued presence is desired to provide a specific characteristic, appearance, property, attribute or quality.

Material

- A material is made up of one or more substances (e.g., an alloy is a material, which in turn is made up of a number of substances).

Material class

- Defined classification of materials that are established in referenced IEC 62474 database for purposes of inventorying aspects of a product, such that no two classes contain the same materials.

Material group

- A set of materials selected by reason of importance with respect to legislative, economic, environmental, or other management concern and listed together for the purpose of their management.
- Example of material group is stainless steel which is a group of corrosion resisting ferrous alloys containing minimum 10% chromium content be present.

Mixture

- Mixture or solution composed of two or more substances in which they do not react.

Issue

4

Document ID

GMS-0248

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Classification Export Control

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- Any goods or service, which is:
 - 1) an item generated in response to a defined set of requirements
 - 2) something that is used or produced to satisfy a need or is the result of a process; e.g. documents, facilities, firmware, hardware, materials, processes, services, software, systems.

Product family

- Group of products each of which contains the same substances or material at a similar concentration level.

Note A common case would be an electrical component supplier having many products of the same substance content that have different electrical values, such as a capacitor, resistor, inductor or an integrated circuit.

Product part

- Sub-unit of a product or another (product) part.

Product structure

- The Product Structure describes the relationships and the position of contained parts.

REACH Article 33

- According to REACH regulation Article 33 (EC 1907/2006) all suppliers must provide recipients of articles with sufficient information if an article contains more than 0.1% (weight/weight) of a substance of very high concern (SVHC) listed on the candidate list which is published by the European Chemicals Agency (ECHA).

Reporting threshold level

- Concentration level at or above which the presence of a substance in a material, component or product is declared if declaration of the substance is mandatory according to laws and regulations, or if it is agreed on to be declared.
- Numerical threshold levels are provided in weight percentage (and parts per million, or ppm). The conversion to be used to calculate ppm is
 $0.1\% = 1\,000\text{ ppm}$.

Issue

4

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Substance

- A chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Substance group

- One or more substances, where in the case of multiple substances they share at least one chemical sub-structure, or chemical or physical property under a generic name.
- The Substance Group is to identify a family or group of substances to which is related to each other. Examples of Substance Groups might include “halogens” or “phthalates”.

4.1 Definitions of declaration categories

Full material declaration

- Declaration of a product’s/component’s/article’s substance contents, meaning all constituent substances shall be declared. Saab normally requires a full material declaration.
- Material declaration classification IPC-1752A Class D format shall be applied for full material declaration

Complete material declaration

- Declaration of a product’s/component’s/article’s all substances according to [GMS-0110](#) are declared.
- If supplier is reporting against [GMS-0110](#), it is comparable to material declaration classification IPC-1752A Class C format.

Partial material declaration

- Declaration of a product’s/component’s/article’s all substances that are subjected to specified regulations. Compliance statements e.g. RoHS and/or REACH.

5 Change History

| Issue | Date | Change |
|-------|------------|-------------------------------------|
| 1-2 | | Change history is not introduced. |
| 3 | 2016-11-02 | Changed template. |
| 4 | 2019-05-07 | Revised and updated. Changed title. |