

# MATERIALS WITH A DIGITAL PRODUCT PASSPORT

## Material coding with coilDNA technology

coilDNA material coding technology is well-established at AMAG. Selected customers have been receiving coded aluminium sheets for around two years. The data attributed to these products enables the lead customer to trace aluminium sheets - and the products made from them - seamlessly through the production process. By implementing this innovation, AMAG has once again set a pioneering standard, always thinking one step ahead.

As a pilot partner for development of coding and data standards for the EU Digital Product Passport (EU DPP), AMAG and coilDNA have an important role to play in product tracking and thereby also contribute to implementation of the EU European Green Deal and the related Ecodesign for Sustainable Products Regulation (ESPR). The Digital Product Passport gives companies and consumers the opportunity to obtain information about how a product was manufactured and whether its materials are recyclable before deciding whether to buy it.

### How does coilDNA contribute?

coilDNA technology makes an important contribution to sustainable development, in keeping with its vision:

*coilDNA gives materials an identity and promotes the efficient use and responsible handling of natural resources.*

The resulting features and unique characteristics of coilDNA include a patented coding and tracking technology for continuously produced materials, such as metal coils, and the

### The EU legal framework: A brief overview

The European Green Deal, the Ecodesign for Sustainable Products Regulation (ESPR) and the Digital Product Passport (DPP) are closely connected and share the same objective: improving the sustainability and environmental-friendliness of products in the EU.

**European Green Deal:** This is the EU's overarching strategy for achieving climate neutrality by 2050. The Green Deal aims to reduce greenhouse gas emissions, increase resource efficiency and promote establishment of a circular economy. [1]

**ESPR (in force since July 2024):** This is a central instrument of the Green Deal. It defines requirements for product sustainability, including in relation to their durability, reparability, energy efficiency and recyclability. The ESPR is intended to ensure that products are designed in a more environmentally friendly manner and with greater durability. [2]

**DPP:** The Digital Product Passport is an integral element of the ESPR. It provides detailed information about a product and its components, thereby improving traceability and transparency throughout the entire supply chain. The DPP contains data on topics including the carbon footprint, used materials and instructions on repair and disposal.

Steel and aluminium are priority materials in the implementation of the Digital Product Passport, alongside many other materials. [4]

According to current (unconfirmed) information, key milestones in the implementation of the DPP will be as follows:

- Working plan for implementation of the ESPR: Q4/2024 [4]
- Publication of the DPP standard: Q4/2025
- DPP's entry into force for steel and aluminium: Q4/2027 (expected)

components made from them throughout the entire product life cycle. The innovative cloud services developed by coilDNA make it possible to manage product-specific data and facilitate efficient communication between partners throughout the value chain regarding materials and production parameters.

This is also related to creation of an Internet of Materials (IOM), a concept similar to the Internet of Things (IOT). coilDNA technology is unique because it is based on the natural principles of human DNA coding. The code is also

characterized by its partition invariance: components that visibly carry the coilDNA will still be identifiable, regardless of how the starting material is cut or formed. By contrast, barcodes and QR codes fail when cut or damaged. Other key characteristics of coilDNA codes, which are composed of alphanumeric characters, include their easy readability (for humans) and the fact they can be printed by standard printers at high production speeds. coilDNA technology also presents significant advantages for material users, namely the ability to identify and

seamlessly track materials and their characteristics at any time, throughout the entire production chain.

This also improves the efficiency of quality management, making it easier to satisfy documentation requirements and avoid mix-ups. The information on material properties (mechanical values and measurements, surface finish and age) attributed to the product in

the coilDNA code are invaluable to efforts in optimizing production processes, material use and inventories.

In addition, coilDNA supports compliance with industry standards on material tracking (e.g. in the aviation, automotive and medical technology industries) and helps to meet transparency requirements. Satisfied customers value the ability to resolve

queries quickly and efficiently with the help of coilDNA. Finally, the use of coilDNA significantly reduces the risk of product counterfeiting and can therefore make a meaningful contribution to meeting forthcoming statutory requirements in relation to the EU Digital Product Passport (an element of the Ecodesign for Sustainable Product Regulation).

### coilDNA marking ensures that parts

- made from continuously produced materials (i.e. steel, aluminium and copper, etc.)
- in different forms (flat-rolled products, long products, rails, profiles, girders, pipes, etc.) and following processing (including cutting, sectioning and forming)
- retain their identity.

The coilDNA code directly links the digital twin with the physical product. This means that information about the production and processing of the individual components that make up a finished series product can be allocated to the finished product and accessed when needed. This meets a key requirement for implementation of the Digital Product Passport. In addition to metals, this statement also applies to cables, hoses and bands made from rubber, plastic, PVC and polyester. ■



### Your pathway to the Internet of Materials:

Explore the functionality of coilDNA for yourself and join us on the pathway to the Internet of Materials. The basic functionality of coilDNA can be tried here. Enter the address <http://qr.amag.at/1TS3> into your smartphone browser (or scan the QR code on the left).

1. Select “Capture Code from Camera” and take a picture of the coil featured in this article.
2. Select the section of code marked with a yellow outline.
3. Select “Submit Code Fragment”.
4. Select “Lookup Code”.

Data about the coil depicted in the image will then be shown.

### Further information about coilDNA

You can find further information by visiting the website of “coilDNA - the IoM company” or by watching the video (QR code on the right).



**coilDNA**  
The IoM company

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### References:

- [1] [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en)
- [2] <https://ec.europa.eu/newsroom/growth/items/769584/>
- [3] <https://circulareconomy.europa.eu/platform/en/knowledge/digital-product-passport-ticket-achieving-climate-neutral-and-circular-european-economy>
- [4] Eisen und Stahl, Aluminium, Textilien (Bekleidung und Schuhe), Möbel (einschließlich Matratzen), Reifen, Reinigungsmittel, Farben, Schmiermittel, Chemikalien, energiebezogene Produkte sowie Elektronik. Quelle: Implementing the Ecodesign for Sustainable Products Regulation - European Commission (europa.eu)