

DIN SPEC 91481



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Einsprüche bis 2023-10-11

Klassifizierung von Kunststoff-Rezyklaten auf Polyamid-Basis durch Datenqualitätslevel für die Verwendung und den (internetbasierten) Handel; Text Englisch

Classification of recycled plastics of polyamides by Data Quality Levels for use and (digital) trading; Text in English

Classification des plastiques recyclés de polyamides par niveaux de qualité des données pour l'utilisation et le commerce (numérique); Texte en anglais

Anwendungswarnvermerk

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Gesamtumfang 20 Seiten

Dieses Dokument wurde durch die im Vorwort genannten Verfasser erarbeitet und verabschiedet.

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Foreword

This DIN SPEC has been developed according to the PAS procedure. The development of a DIN SPEC according to the PAS procedure is carried out in DIN SPEC-consortiums and does not require the participation of all stakeholders.

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Introduction

With 15 million tons of plastic waste entering the oceans every year [1], rampant plastic pollution has found its way on the international agenda of regulators and standardization bodies. At the same time, global plastic production is on a steep growth trajectory, from 400 million tons annual production in 2019 to 1 600 million tons by 2050 [2]. By 2040, the amount of mismanaged plastic waste is already projected to have reached 239 million tons (56 % of global plastic waste), combining terrestrial and ocean leakage and open burning [3] — with devastating and yet poorly understood consequences for life on the planet.

Plastics are, however, an indispensable material in every stretch of life — be that for packaging to prevent food waste, light-weight automotive construction, renewable energy or medical appliances. The poor performance in terms of reuse and recycling are tied to a fundamental dysfunctionality of plastics markets: high-quality recyclates are on average more expensive than virgin material.

Two core reasons for this current price differential are the lack of recognized standards for recyclates and the lack of digitization in the industry, making it hard to provide transparency and track the material through its life-cycle. Only with better classification of recyclates based on data depth can commodification of recyclates be achieved — spurring further investments and driving more consistent demand towards recyclates. This will allow for plastic waste to be recycled on the broadest scale possible and thus closing the loop for plastics. Such is the ambition for a truly circular economy of plastics.

Against this backdrop, the consortium of DIN SPEC 91481 has been assembled to address the lack of consistent data quality for feedstock and recyclates in polyamides. The classification of recyclates according to Data Quality Levels (DQL) — based on the classification framework established by DIN SPEC 91446 — will provide the market with a common language and remove obstacles for the industrial uptake of polyamides recyclates — both from a quantitative and qualitative point of view.

It also establishes a methodology for Digital Material Passports for polyamide materials — offering a specific example how the overall push toward product passports at the European level can be implemented in the plastic industry — from feedstock all the way to the finished compound. It addresses the common situation of lack of data at the feedstock level, especially in post-consumer materials, and incentivizes the data collection and processing at the earliest point of the chain – with the vision to maintain the data quality of a material throughout multiple lifecycles.

By doing so, this document is furthering the objective to increase the market acceptance of polyamide recyclates. In combination with the dissemination power of digital solutions, such as platforms, blockchain applications and machine-learning, this document paves the way for a paradigm shift towards a truly circular plastic industry, catalyzed through standardization and digitization.

1 Scope

This document specifies requirements for the use and (digital) trade of polyamide-based recycled plastics and plastic waste feedstock for recycling. Furthermore, it specifies Data Quality Levels and testing requirements for manufacturers of these recyclates and plastic waste feedstock. Based on the methodology of DIN SPEC 91446, a uniform methodology is introduced to identify and label these recyclates and plastic waste feedstock. This document is aimed at manufacturers and users of polyamide-based recycled plastics and waste feedstock for polyamide-based recycling, as well as members of the value chain who trade in these materials or carry out material property testing.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DIN SPEC 91446:2021-12, *Classification of recycled plastics by Data Quality Levels for use and (digital) trading; Text in English*

3 Terms and definitions

For the purposes of this document, the following terms and definitions given in DIN SPEC 91446 and the following apply.

DIN and DKE maintain terminological databases for use in standardization at the following addresses:

- DIN-TERMinologieportal: available at <https://www.din.de/go/din-term>
- DKE-IEV: available at <http://www.dke.de/DKE-IEV>

3.1

Digital product passport DPP

set of machine-readable data comprising characteristics of components, materials and chemical substances of a product and which can be read, processed and altered electronically

Note 1 to entry: The data may be stored in a centralized or decentralized manner.

Note 2 to entry: It may also contain data on repairability, spare parts or appropriate means of disposal for a product.

3.2

Digital material passport DMP

set of data comprising characteristics of a material over its entire life cycle and which can be read, processed and altered electronically

EXAMPLE VDA 284; Global Automotive Declaration Substance List; origin of the material, production process, chemical composition, mechanical characteristics, laboratory analyses, sustainability metrics, compliance data, Data Quality Levels.

Note 1 to entry: The term “material” comprises both plastic waste feedstock and regranulates/recompounds in the meaning of “products” according to the German Product Liability Act (ProduktHaftG)