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| **Report IDM reference No.** | ***2MLBVT*** | **Version: see IDM** |

Final Report

on Deliverable

*MAT-1.2.1-T3-D1* Summary overview document on Material Property Handbook - Design allowables (KIT)

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|  | | **Deliverable-ID**[[1]](#footnote-1) | *MAT-1.2.1-T3-D1* |
| **Work Package** | *WPMAT* | **Date** | *20 Dec. 2015* |
| **Project Leader** | *Michael Rieth* | | |
|  | | | |
| **TS Title** | *PPPT Material Handbook 2015 (KIT)* | | |
| **TS Ref. No.** | *MAT-1.2.1-03* | **TS IDM-link** | [2MAGNY](https://idm.euro-fusion.org/?uid=2MAGNY&action=get_document) |
| **Task Owner** | *Ermile Gaganidze* | | |
| **RU(s)** | *KIT* | | |

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| **Report Review & Approval** | |
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| **Executive Summary** |
| This report contains only the deliverable cover page and succinct summary of the work. The full deliverable report contains sensitive data and is maintained in a restricted access area on the IDM. This report covers a very brief overview of the work and highlights the link to the document. |

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| **Comments** (shortcomings, deviations, etc.) |
| *if any please shortly indicate here* |

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# Summary of the work

The current work summarizes the EUROfusion EUROFER data reviewing procedure for the exclusion and inclusion the data in the Material Property Handbook. AFCEN, ASME and ITER SDC-IC methodologies are applied for calculation of the average and minimum curves as well as for the generation of analysis data.

**This deliverable contains information from the EUROfusion IDM Materials database (explained in section 2.) that is of a sensitive nature.**

**The full deliverable report is maintained in a restricted area of the IDM at:** [**IDM Root**](https://idm.euro-fusion.org/IDM/Pages/DocumentSystem.aspx?uid=29PSK8) / [**EUROfusion**](https://idm.euro-fusion.org/IDM/Pages/DocumentSystem.aspx?uid=2L6TNJ) / [**PPPT - Power Plant Physics and Technology**](https://idm.euro-fusion.org/IDM/Pages/DocumentSystem.aspx?uid=2MF7QH) / [**11 MAT-Materials**](https://idm.euro-fusion.org/IDM/Pages/DocumentSystem.aspx?uid=2MDXWC) / [**a. Design Data Integration**](https://idm.euro-fusion.org/IDM/Pages/DocumentSystem.aspx?uid=2MEFBA) / [**WBS1.2 Material Database & Handbook**](https://idm.euro-fusion.org/IDM/Pages/DocumentSystem.aspx?uid=2KWTBB) / [**Private**](https://idm.euro-fusion.org/IDM/Pages/DocumentSystem.aspx?uid=2MCCP7) / [**Structural Materials**](https://idm.euro-fusion.org/IDM/Pages/DocumentSystem.aspx?uid=2MACGL). **Document IDM-ID: 2MJH6V.**

**This report has been produced for the non-restricted areas of the IDM for prosperity only and does not contain the results associated with this deliverable.**

# EUROfusion IDM Material Database

This document summarizes the purpose of the EUROfusion database and outlines its access conditions.

To support the European Early DEMO Conceptual Design Analysis the EUROfusion Power Plant Physics and Technology (PPPT) department is working on the development of Materials Database for the DEMO in-vessel components. The database will include a wide spectrum of DEMO relevant structural (base & joints), armour (base & joints) and functional materials (mirrors & optical windows & optical components, etc.). As summarised in the flowchart overleaf, the available data will be subjected to a review and evaluation process. The data that passes the qualification criteria will be used for the development of an EUROfusion Material Property Handbook (MPH) summarizing the material database content at a higher level. The calculation of the design allowables will be performed according to internationally accepted methodologies (e.g. AFCEN, ITER SDC-IC, ASME, …). The material handbook is foreseen to be freely available to the PPPT projects with periodic releases to update contents as new data emerge. Such work is the responsibility of the Engineering Data & Design Integration subproject of WPMAT, and is being undertaken within its WBS1.2 Material Database & Handbook workstream.

The assurance of the high quality of the database requires that a restricted number of individuals have full access not only to the material data already published in the open literature but also to the *raw* *material* *data that has been generated by participant Research Units in the course of implementing the previous Contract of Association and the EFDA, plus the ongoing and future EUROfusion grants* (in the following referred to as *data*). A close co-operation with WPMAT Subprojects and the PPPT Design Projects is envisaged.

Within EDDI MD&H (WPMAT WBS1.2), activities have been launched for development of the data collection templates. Dedicated efforts have been made for adaptation of existing well established database templates (kindly made available by CEA) to cover the needs of the differing EUROfusion materials.

A dedicated *Data Deposit* ([hyperlink](https://idm.euro-fusion.org/IDM/Pages/DocumentSystem.aspx?uid=2MD4CY)) folder is created on the IDM for collection of the data emerged within EUROfusion grants. Within this public *Data Deposit* folder four sub-folders have been created for uploading of the data depending on the material classes, see a schematic representation below.

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The same folders also contain relevant data collection templates including template glossary. The detailed manual for the use of the steel mechanical properties’ templates can be found in the IDM document "F.Tavassoli, EDDI 1.2.2 D7 EUROFER97 Template Development & Population (CEA) (2MHUKM v1.0)" ([hyperlink](https://idm.euro-fusion.org/?uid=2MHUKM&version=v1.0&action=get_document)).

Though these public folders can be accessed by each IDM system member, the following Code of Conduct has to be followed while accessing the addressed database folders: **In the frame of EUROfusion Programme you are given privileged access to raw data generated under the EUROfusion grants. This privileged access is based on your individual competence for achieving EUROfusion Programme goals. This raw data must be treated with care and discretion. You are expressly not allowed to transmit the raw data outside the IDM membership without permission from EUROfusion PMU, that in turn may require Commission or F4E authorisation**.

For more details please see: [2MB369](https://idm.euro-fusion.org/?uid=2MB369&action=get_document)

1. One *Deliverable Report* shall be submitted for each deliverable e.g. Study Report, Commissioning Report, Final Assessment Report, Technical Acceptance Report, Procurement Report, etc. [↑](#footnote-ref-1)