# CDPM2 UMAT Change History

## English edition

Documentation edition 2026-11-09

This document consolidates user-facing changes. Current specifications, verification and worked examples are maintained separately. Routine work logs and intermediate tuning attempts are omitted.

## 2026-11-09 Documentation organization

Revision prefixes and appended historical bodies are replaced by current-state guides. Numerical methods are integrated into the manual and current-source test results into the verification guide. Examples 1 and 2 share eight sections under a general analysis-examples title, with contents and the Example 2 mesh beside its model description.

## Files

CDPM2_Manual_EN.pdf

CDPM2_Verification_EN.pdf

CDPM2_Examples_EN.pdf

CDPM2_Change_History_EN.pdf

This documentation reorganization changes no source code, materials or analysis results.

# 2026-11-06 Numerical update

Normalized flow, a transformed plastic multiplier and log-domain exponent evaluation are used with balanced linear solving, root-checked algebraic continuation, first-activation characteristic-length direction sensitivity and spectral divided differences.

Material constants, viscosity and acceptance tolerances were not relaxed. The 24-property adapter and 62 material/work state entries are retained; 89-entry input additionally stores 27 reference-geometry values. Cross-version restart compatibility is not guaranteed.

## Verification highlights

All 36 runs for 312 conditions completed; maximum stress difference is 3.81149e-9 MPa over all times and eight points. All 91 archived failed Example 2 local trials converge; the broader archive has 724/1094 converged and 370 rejected. The 15-width tangent criterion qualifies 700/724 points. Initial restart RF exceeds its original criterion; all-field equivalence is not passed.

See the verification guide for conditions and unresolved issues. This is a research preview, not a production-qualified release.

Source SHA-256

d373a8bee58490c07bccce8a60c16cf3c09b1986c1f484f1d84e6c187192fbd0

# Reference-edition record

## 2026-10-14 to 15 Materials, inputs and verification documentation

The reference editions documented the constitutive model, 24 properties, state variables, ASCII FIL reference geometry and 89-entry geometry persistence/restart. The recorded OOFEM campaign had 307 PASS and five FAIL out of 312. It is not a fresh independent OOFEM campaign for the November source, and the five discrepancies are not claimed resolved.

Verification plots, test conditions and criteria remain in the Verification Guide. OOFEM comparisons and distributed-source regression/additional tests are distinguished; curves are not reclassified as reruns of another source. Only change history is separated into this document.

## Worked examples

The examples guide contains geometry, boundaries, materials, controls, curves, contours, execution and sources for Examples 1 and 2. Saved results are presented without changing materials or analysis results for editorial reasons.

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