



**The International Association for the Properties of Water and Steam**

**Evaluation Report  
on the  
Draft Revised Release on the IAPWS Formulation 2017 for the  
Thermodynamic Properties of Heavy Water**

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## Changes to the Revised Release

The most important changes to the revision of the document are:

- The parameters  $a_1$  and  $a_2$  in Table 1
- The coefficients, parameters, and exponents in Table 2  
The associated test values in Tables 6, 7, and 8
- The Equation (9) for the melting pressure of ice Ih and the associated test value
- The Equation (13) for the sublimation pressure and the associated test value
- The uncertainty plots of density, speed of sound, specific isobaric heat capacity, vapor pressure, saturated liquid density, and saturated vapor density in Figures 1 to 4.

## Test Calculations and Suggestions of the Evaluation Task Group

### Programming in different ways by different groups:

- Fundamental equation and its derivatives of Tables 4 and 5
- Properties of Table 3
- Melting and sublimation pressure equations

Comparison of the second and the third virial coefficients with experimental data from Michal Duška.

### Suggestions for Changes

- The same number of significant digits for both parameters  $a_1$  and  $a_2$  in Table 1
- Exponent in Table 2
- Two test values in Table 6
- Two test values in Table 7
- Test value in Table 8

## Results

The fundamental equation, its derivatives, and the formulae for determining thermodynamic properties are correct.

All test values of the draft release are correct.

## Conclusions and Recommendations

The presentation of the Revised IAPWS formulation for the thermodynamic properties of heavy water in the draft document is clear, consistent and complete.

The Draft contains all the information needed for computation and verification, as well as essential information about the background, and relevant references.

The quality of the document is excellent.

The Evaluation Task Group recommends the Draft to be accepted as an IAPWS Revised Release.