About electronic reference "Thermodynamic Properties Individual Substances"

The authors of reference

Authors 1-4 volumes: V.P. Glushko, L.V. Gurvich, I.V. Weitz, V.A. Medvedev, G.A. Hachkuruzov, V.S. Jungmann, G.A. Bergman, V.F. Baibuz, V.S. Iorish etc.

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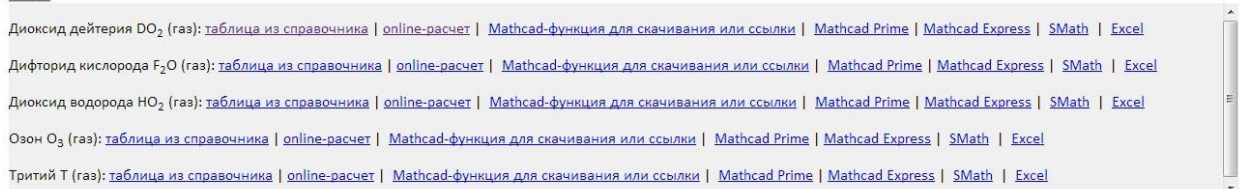
History of the reference book "Thermodynamic properties of individual substances" ("TPIS") has more than five decades. Work on this edition began in the middle of the last century due to the needs of the rapidly developing missile technology. Known at the time of data on the thermodynamic properties of the products of combustion of fuels were insufficient to calculate the engine and the choice of fuels. In subsequent years, the work on a handbook has gone far beyond these initial tasks, as different areas of science and technology required data on the properties of various substances.

The first two editions of this handbook have been prepared in 1953-1956 years a team of researchers of the Institute of Fossil Fuels (IGI) of the AS USSR and the State Institute of Applied Chemistry (GIPKh) under the overall guidance of the founder of Russian rocket engine Academician V.P. Glushko. In 1963, these works have been translated into the Institute of Fossil Fuels for High Temperatures, Academy of Sciences of the USSR (IVTAN).

Recently, the third edition of "TPIS" in Russian was published in 1979 - 1982. in four volumes (see photo). The main role in the preparation of this publication owned by members of the Division of Chemical Thermodynamics IVTAN. Planning and coordination of works on preparation of a handbook provided by the leading author of all editions of Professor L. Gurvich.

Planned Volume V of this publication has not been published. The material in this volume were prepared in the period 1985 - 2004 years. in Russian and English languages, to be published as they are not only a Russian edition of Volume V, but as the English edition of Volume IV, published in 1989 - 1993 years (see photo).

Том 1:

Диоксид дейтерия DO$_2$ (газ): таблица из справочника | online-расчет | Mathcad-функция для скачивания или ссылки | Mathcad Prime | Mathcad Express | SMath | Excel

Дифторид кислорода F$_2$O (газ): таблица из справочника | online-расчет | Mathcad-функция для скачивания или ссылки | Mathcad Prime | Mathcad Express | SMath | Excel

Диоксид водорода HO$_2$ (газ): таблица из справочника | online-расчет | Mathcad-функция для скачивания или ссылки | Mathcad Prime | Mathcad Express | SMath | Excel

Озон O$_3$ (газ): таблица из справочника | online-расчет | Mathcad-функция для скачивания или ссылки | Mathcad Prime | Mathcad Express | SMath | Excel

Тритий T (газ): таблица из справочника | online-расчет | Mathcad-функция для скачивания или ссылки | Mathcad Prime | Mathcad Express | SMath | Excel

Figure 1. The content of the electronic reference "TPIS".

The electronic version of the handbook "TSIV" contains the calculations, which are "live" table from the directory. The calculations are performed in such environments as: Mathcad 15, Mathcad Express, Mathcad Prime 2, SMath, Excel and accompanied by a picture of the directory table (Fig. 1).

Из справочника "Термодинамические свойства индивидуальных веществ" под ред. В.П. Глушко, Л.В. Гурвич, Г.А. Бергман, И.В. Вейц, В.А. Медведев, Г.А. Хачкурузов, В.С. Юнгман М.: Наука, 1978, Том1, Книга2, с. 327, Таблица 8, с. 24, ссылка

From the directory "Thermodynamic properties of individual substances", ed. V.P. Glushko, L.V. Gurvich, G.A. Bergman, I.V. Weitz, V.A. Medvedev, G.A. Hachkuruzov, V.S. Jungman Moscow, Nauka Publishing House, 1978, Volume 1, Book 2, 327 pages, Table 8, p. 24, link

Озон O3 (г)   Интервал температур 500 K - 6 000 K $T :=$ ⟦1200⟧ ℃
Ozone O3 (g)   Temperature range 500 K - 6 000 K

$$M := 47.9982 \cdot \frac{gm}{mole}$$

Recalculate

$$\Phi°(T) = 270.369 \cdot \frac{J}{mole \cdot K}$$

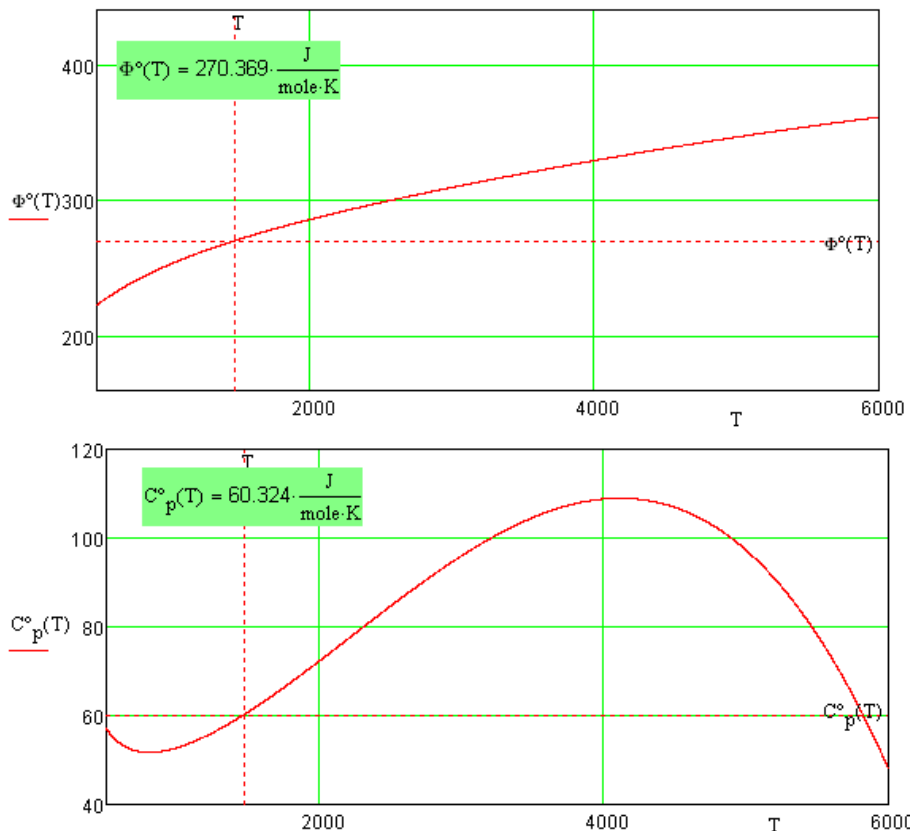$$C°_p(T) = 60.324 \cdot \frac{J}{mole \cdot K}$$

Figure 2. Use of the Online-worksheet.

Electronic reference feature is the ability to use online-worksheets. Any user can set the desired temperature in the appropriate unit and get the value, as well as see a graph of "behavior" of the desired function in the temperature (Fig. 2).

In addition, the electronic version of the guide allows you to make visible features on the properties of substances in the environment, Mathcad (Fig. 3).
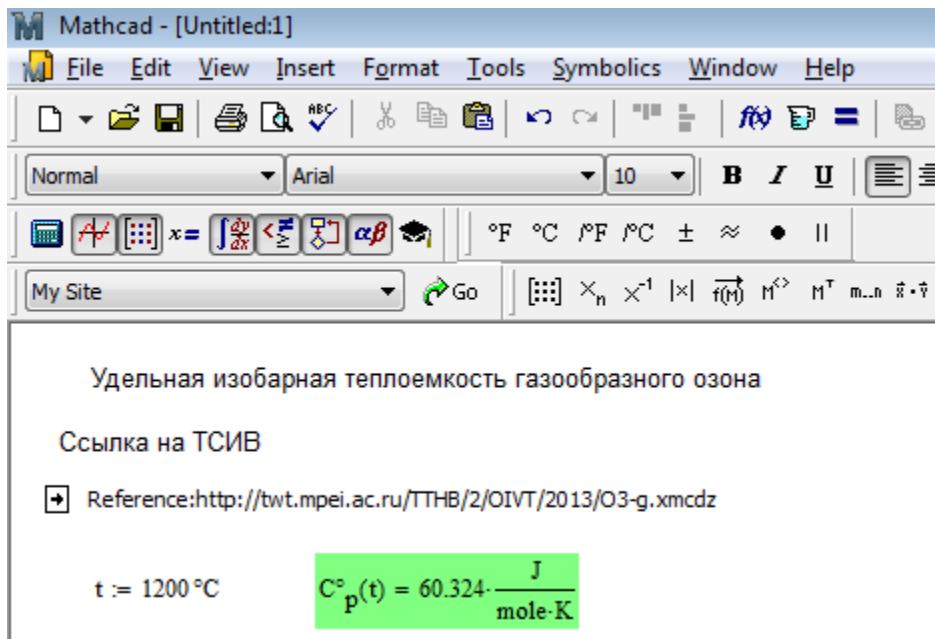
Fig. 3. Link of Mathcad in the electronic reference "TPIS"

Links:

About cloud technologies MAS/MCS (in Russian)

Web-version of reference book «Thermophysical properties of thermal power engineering working substances»

Article V.F. Ochkov, S.A. Piskotin, I.A. Gibadullin and Chjou Chjou Kou Koo "Internet Reference Books: Working with formulas" (in Russian)