

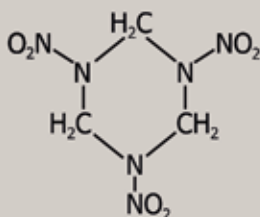


ICT-DATABASE OF THERMOCHEMICAL VALUES



Names

CYCLOTRIMETHYLENETRINITRAMINE
RDX
HEXOGEN
CYCLONITE
1,3,5-TRINITRO-1,3,5-TRIAZACYCLOHEXANE
121-82-4



Molecular Weight

222,117 g

Oxygen Balance

-21,61 %

State

Solid

Class

Energetic fillers

Known Properties

Properties	Value	Remarks	Source
Density	1,816 g/cm ³		563
Melting point	204,1 °C		421
Melting point	205 °C	Decomposition (DTA onset)	3378
Heat of combustion	501,8 kcal/Mol		63
Heat of combustion	506 kcal/Mol		17

Enthalpy of Formation

Energy of Formation

[kJ/Mol]	[kcal/Mol]	[kJ/kg]	[kJ/Mol]	[kcal/Mol]	Source
66,94	16,00	301,39	89,24	21,33	525
70,29	16,80	316,46	92,59	22,13	STB
79,08	18,90	356,02	101,38	24,23	17
71,13	17,00	320,23	93,43	22,33	17
61,50	14,70	276,90	83,81	20,03	63
60,25	14,40	271,25	82,55	19,73	554

ICT-Thermochemical Database

Search: Information: About: Exit:

Search Results

Physical Properties

Chemical Formula: **C₂H₄N₂O₄**

Molecular Weight: 194.024 g/mol

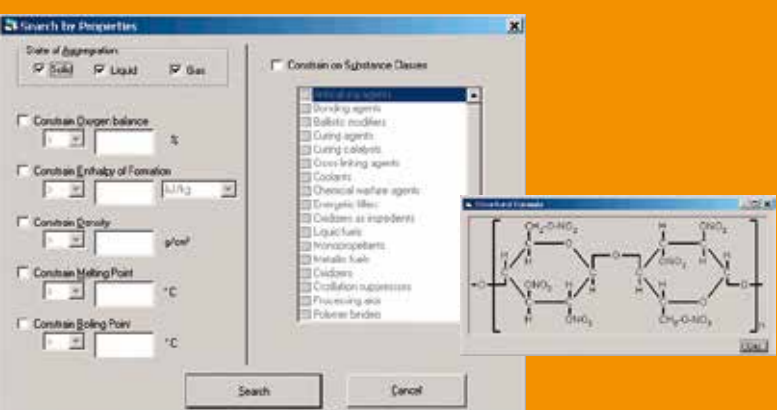
Density: 1.573 g/cm³

Energy of Formation

State	Δ _f H ⁰ (kJ/mol)	Δ _f G ⁰ (kJ/mol)	Δ _f S ⁰ (J/mol·K)	Δ _f H ²⁹⁸ (kJ/mol)	Δ _f G ²⁹⁸ (kJ/mol)	Δ _f S ²⁹⁸ (J/mol·K)
gas	97.81	51.31	143.1	97.81	51.31	143.1
liq	97.81	51.31	143.1	97.81	51.31	143.1
crs	97.81	51.31	143.1	97.81	51.31	143.1
sol	97.81	51.31	143.1	97.81	51.31	143.1
aq	97.81	51.31	143.1	97.81	51.31	143.1

ICT-DATABASE OF THERMOCHEMICAL VALUES

Thermodynamic calculations are nowadays an essential part of scientific and technical investigations. The reliability of such calculations primarily depends on the availability and accuracy of the input data. The ICT-Database is a powerful tool for the evaluation of energetic ingredients and performance calculations of formulations as rocket and gun propellants, e.g. by using the ICT-Thermodynamic-Code.



CONTENT AND POSSIBILITIES

The Database

- contains data of more than 14,000 substances
- contains not only data of energetic materials and can therefore be used for different purposes
- is updated regularly
- The following data are stored:
 - Sum formula / structure formula / state of aggregation / names / CAS registry number / molecular weight / oxygen balance / density / melting point / boiling point / enthalpy of formation / energy of formation / heat of combustion / references
- The Database allows to search for:
 - Names and CAS registry numbers / sum formulas / parts of names / parts of sum formulas / substances consisting of certain elements / substances containing certain elements / substances with certain properties / substances belonging to certain classes (e.g. liquid fuels, pyrotechnics, etc.)

SYSTEM REQUIREMENT

Windows 7 and higher

