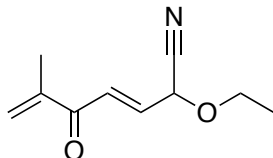


PICK THE MOST ACCURATE ANSWER FOR EACH QUESTION

1. Which is the **correct electronic configuration for ${}^7\text{N}$** ?

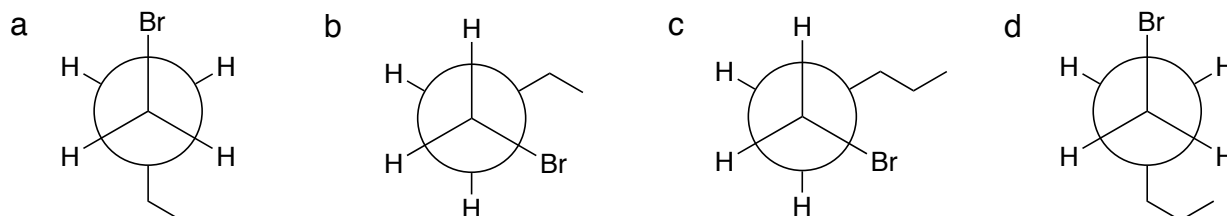
- a. $1s^2 2s^2 2p_x^2 2p_y^1 2p_z^0$ c. $1s^2 2s^2 2p_x^1 2p_y^1 2p_z^1$
 b. $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^2$ d. $1s^2 2p_x^2 2p_y^2 2p_z^1$

2. How many **sp^2 - hybridized atoms** are there in the following molecule?

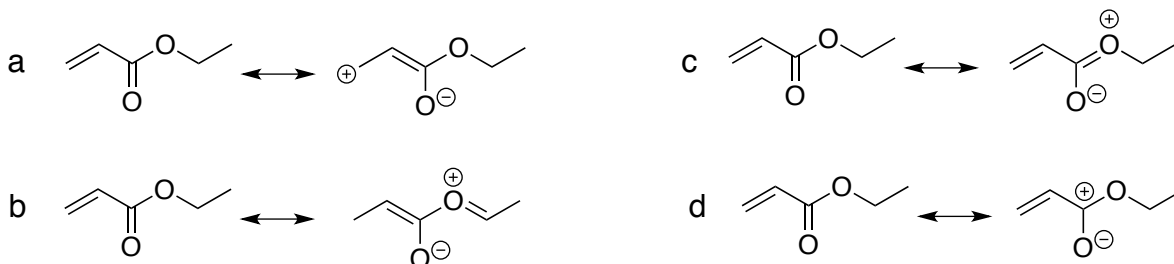


- a. 4
 b. 5
 c. 6
 d. 7

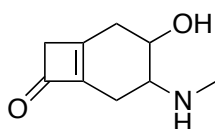
3. Which of the following is the correct **Anti-Newman** projection of **1-bromo-pentane** looking down the **C1 - C2** bond?



4. Which of the following is **NOT** a correct set of **resonance structures**?

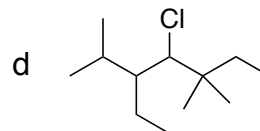
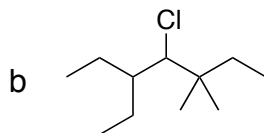
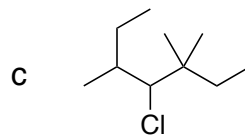
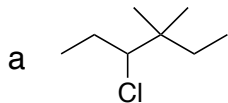
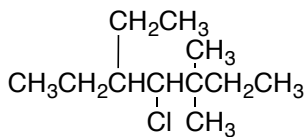


5. Which of the following is the **correct molecular formula** of the **molecule below**?

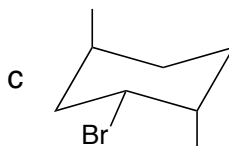
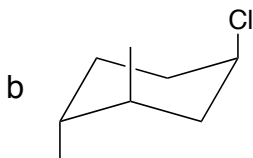
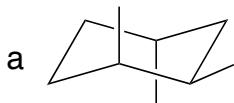


- a. $\text{C}_8\text{H}_{13}\text{O}_2\text{N}$
 b. $\text{C}_8\text{H}_{10}\text{O}_2\text{N}$
 c. $\text{C}_9\text{H}_{10}\text{O}_2\text{N}$
 d. $\text{C}_9\text{H}_{13}\text{O}_2\text{N}$

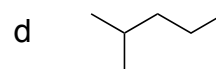
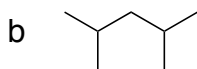
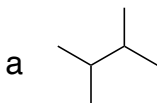
6. Which of the following is the **correct stick structure** of the **condensed structure** on the left?



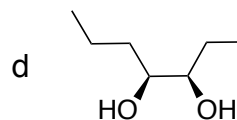
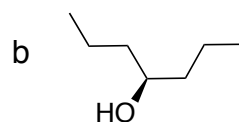
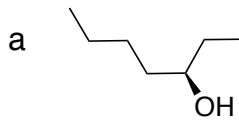
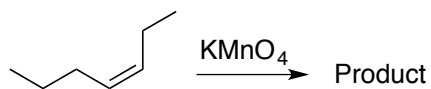
7. Which of the following is the **MOST stable chair conformation**?



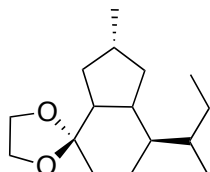
8. Which of the following structures represents isohexane?



9. What is the correct product for the following reaction?

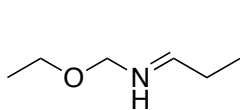


10. How many chiral carbons (C*) are there in the following molecule?



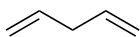
- a. 4
b. 5
c. 6
d. 7

11. What is the **formal charge** of the **Nitrogen atom** in the following structure?

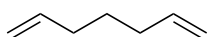


- a. 0
b. +1
c. -1
d. +2

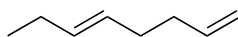
12. Which of the following molecules contains a **Conjugated Diene**?



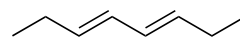
a



b

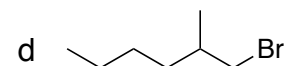
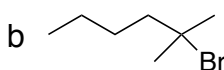
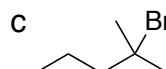
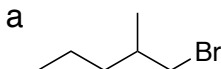
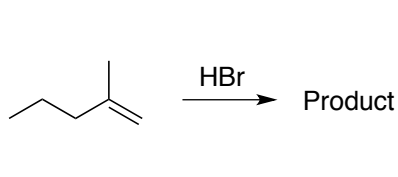


c

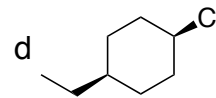
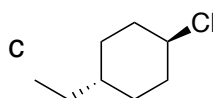
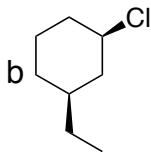
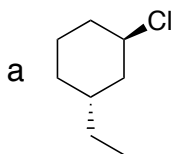


d

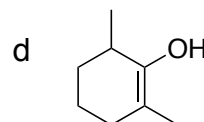
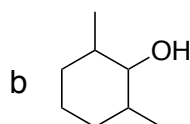
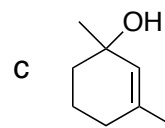
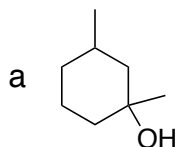
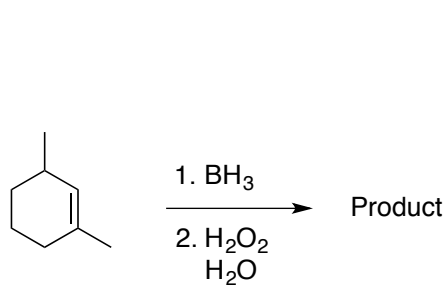
13. What is the correct product for the following reaction?



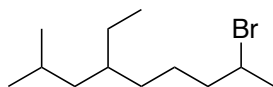
14. Which of the following is the **correct** representation of **trans-1-chloro-3-ethylcyclohexane**?



15. What is the correct product for the following reaction?

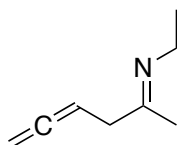


16. What is the **correct IUPAC name** for the following structure?



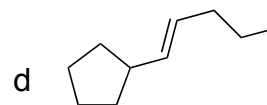
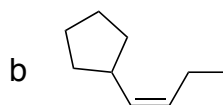
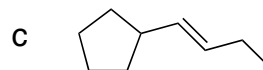
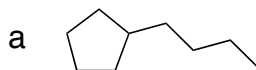
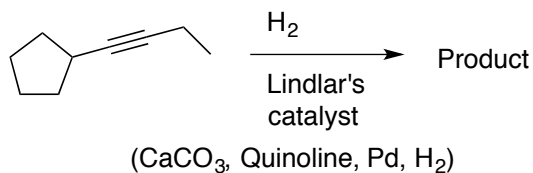
- a. 8-bromo-4-ethyl-2-methylheptane
 b. 8-bromo-4-ethyl-2-methylnonane
 c. 2-bromo-6-ethyl-8-methylheptane
 d. 2-bromo-6 ethyl-8-methylnonane

17. How many **sp² Carbons** are there in the molecule below?

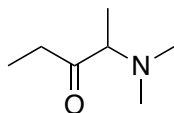


- a. 2
 b. 3
 c. 4
 d. 5

18. What is the correct product for the following reaction?

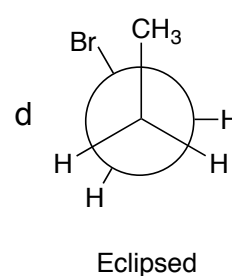
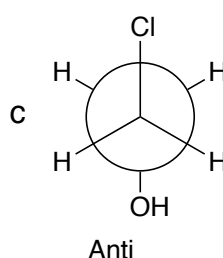
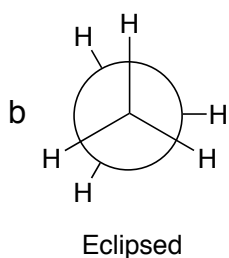
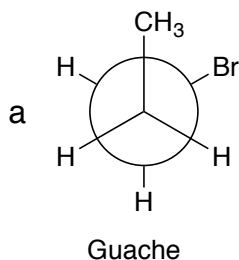


19. What is the **formal charge** of the **Oxygen atom** in the following structure?

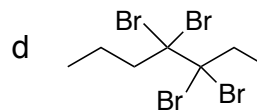
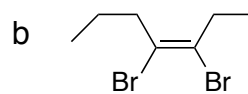
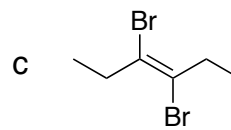
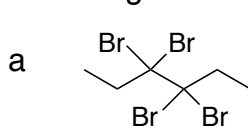
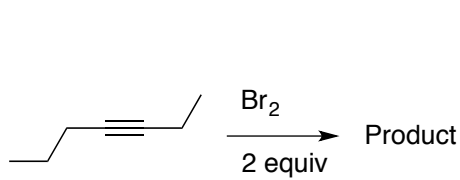


- a. 0
 b. +1
 c. -1
 d. +2

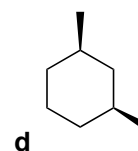
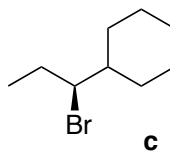
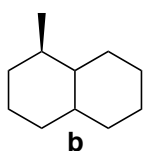
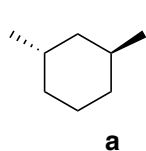
20. Which of the following is the **LEAST STABLE** Newman projection?



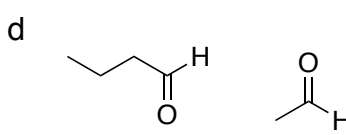
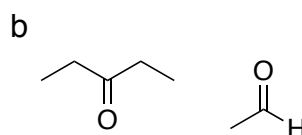
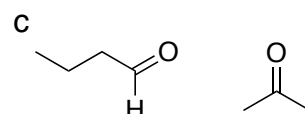
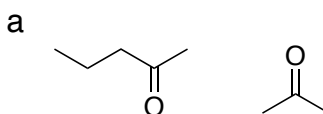
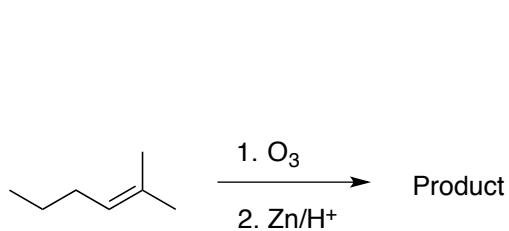
21. What is the correct product for the following reaction?



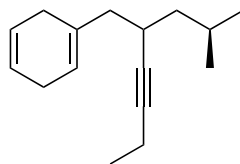
22. Which of the following is a "meso" compound?



23. What is the correct product for the following reaction?

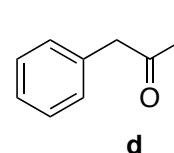
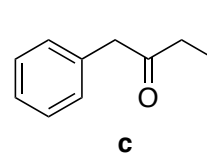
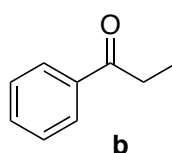
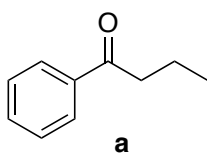
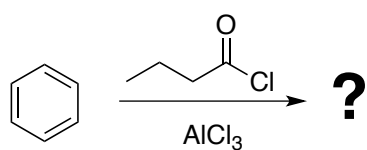


24. How many π -bonds are there in the following structure?

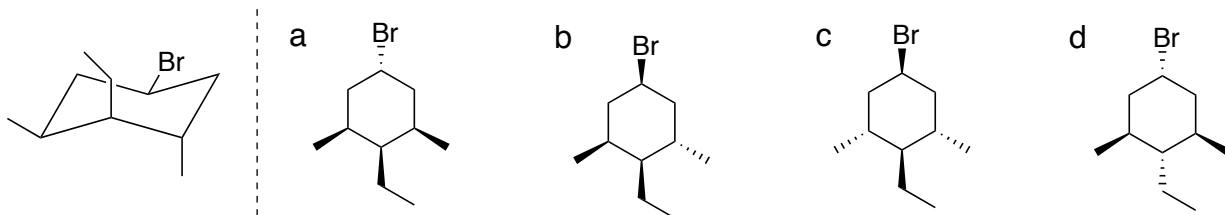


- a. 3
- b. 4
- c. 5
- d. 6

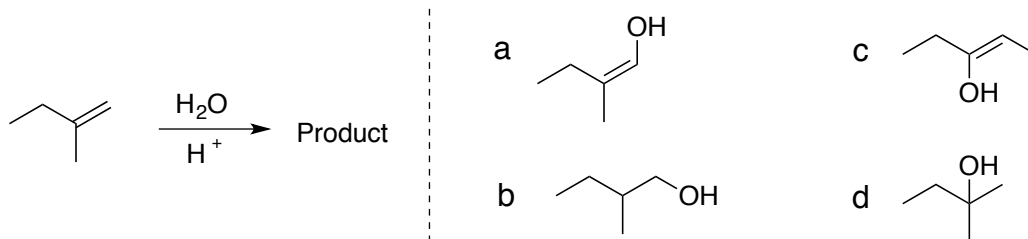
25. What is the correct product for the following reaction?



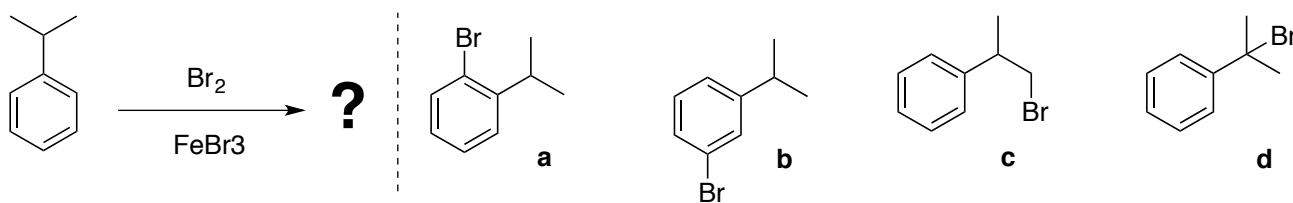
26. What is the **correct representation** of the **chair structure** on the left?



27. What is the correct product for the following reaction?

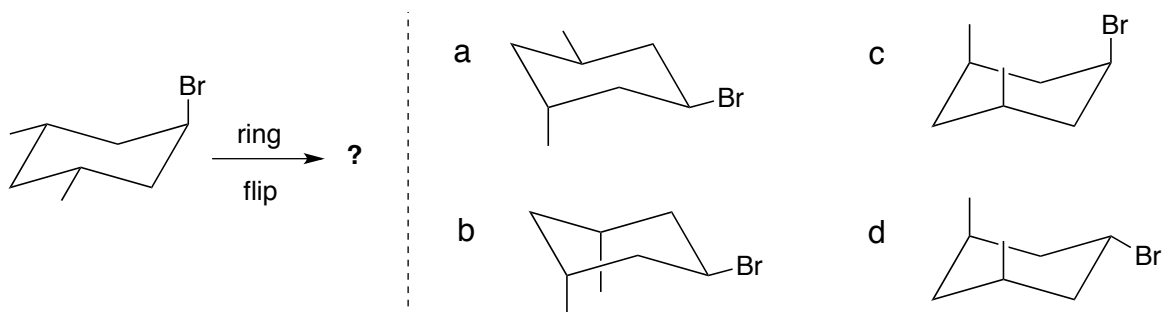


28. What is the **correct product** for the following reaction?



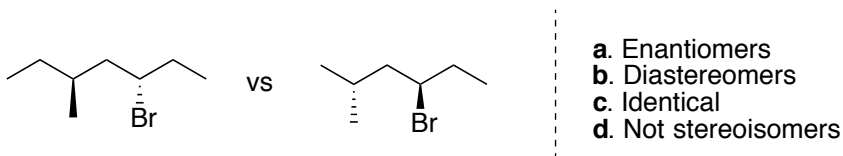
6

29. Which one is the **correct RING FLIP** representation of the **chair structure** on the left?

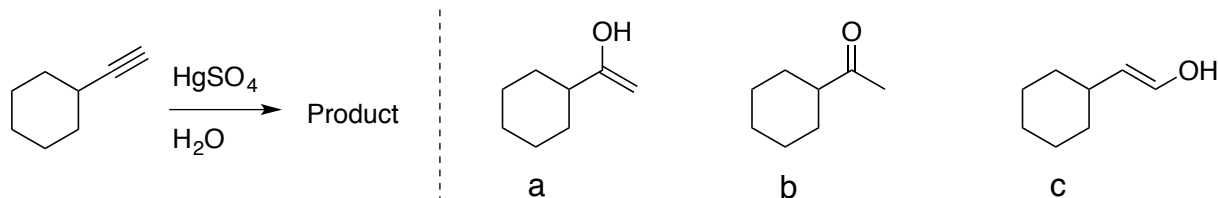


7

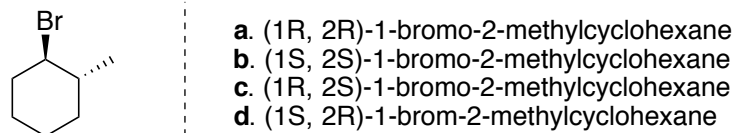
30. What is the relationship of the following pair of compounds?



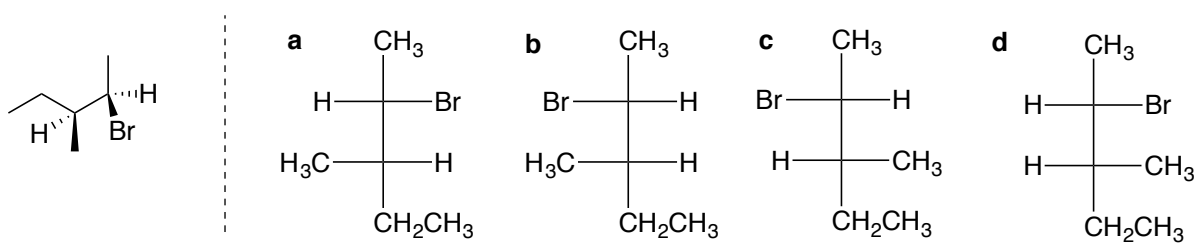
31. Which of the following **IS NOT** a possible product for the following reaction?



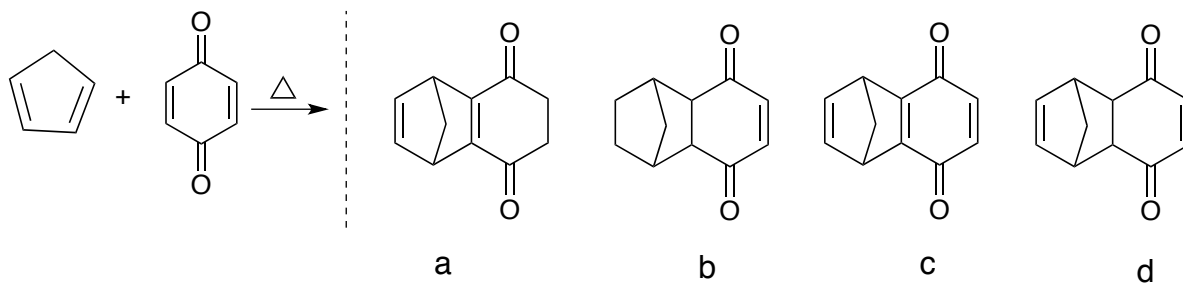
32. Which is the **correct** name for the following structure?



33. Which one is the correct Fisher projection for the following molecule?



34. Which of the following represent the product of the Diels–Alder (4+2 cycloaddition) reaction?



PERIODIC TABLE OF THE ELEMENTS

<http://www.ktf-split.hr/periodni.cri/>

GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
PERIOD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	1.0079 H HYDROGEN																	4.0026 He HELIUM	
2	6.941 Li LITHIUM	9.0122 Be BERYLLIUM																18.998 Ne NEON	
3	22.990 Na SODIUM	24.305 Mg MAGNESIUM																39.948 Ar ARGON	
4	39.098 K POTASSIUM	40.078 Ca CALCIUM	50.942 Sc SCANDIUM	47.867 Ti TITANIUM	50.942 V VANADIUM	51.996 Cr CHROMIUM	54.938 Mn MANGANESE	55.845 Fe IRON	58.933 Co COBALT	58.933 Ni NICKEL	63.546 Cu COPPER	65.39 Zn ZINC	69.723 Al ALUMINIUM	72.64 Si SILICON	74.922 P PHOSPHORUS	78.96 S SULPHUR	79.904 Cl CHLORINE	83.80 Kr KRYPTON	
5	85.468 Rb RUBIDIUM	87.62 Sr STRONTIUM	88.906 Y YTRIUM	91.224 Zr ZIRCONIUM	92.906 Nb NIOBIUM	95.94 Mo MOLYBDENUM	98 Tc TECHNETIUM	101.07 Ru RUTHENIUM	102.91 Rh RHODIUM	106.42 Pd PALLADIUM	107.87 Ag SILVER	112.41 Cd CADMIUM	118.71 In INDIUM	121.76 Sn TIN	127.60 Sb ANTIMONY	126.90 Te TELLURIUM	126.90 I IODINE	131.29 Xe XENON	
6	132.91 Cs CAESIUM	137.33 Ba BARIUM	138.91 La-Lu Lanthanide	178.49 Hf HAFNIUM	180.95 Ta TANTALUM	183.84 W TUNGSTEN	186.21 Re RHENIUM	188.91 Os OSMIUM	192.22 Ir IRIDIUM	195.08 Pt PLATINUM	196.97 Au GOLD	200.59 Hg MERCURY	204.38 Tl THALLIUM	207.2 Pb LEAD	208.98 Bi BISMUTH	209 Po POLONIUM	210 At ASTATINE	222 Rn RADON	
7	223 Fr FRANCIUM	226 Ra RADIUM	227 Ac-Lr Actinide	261 Rf RUTHERFORDIUM	262 Db DUBNIUM	266 Sg SEABORGIUM	271 Bh BOHRIUM	277 Hs HASSIUM	285 Mt MEITNERIUM	288 Uun UNUNUNIUM	289 Uuu UNUNUNIUM	289 Uub UNUBIUM	289 Uuq UNUQUADIUM	289 Uuq UNUQUADIUM	289 Uuq UNUQUADIUM	289 Uuq UNUQUADIUM	289 Uuq UNUQUADIUM	289 Uuq UNUQUADIUM	289 Uuq UNUQUADIUM

RELATIVE ATOMIC MASS (1)

GROUP IUPAC

GROUP CAS

ATOMIC NUMBER

SYMBOL

ELEMENT NAME

Legend:

- Metal
- Semimetal
- Nonmetal
- Alkali metal
- Alkaline earth metal
- Transition metals
- Lanthanide
- Actinide
- Chalcogens element
- Halogens element
- Noble gas

STANDARD STATE (25 °C; 101 kPa)

Ne - gas

Fe - solid

Ga - liquid

Tc - synthetic

(1) Pure Appl. Chem., 73, No. 4, 667-683 (2001)
Relative atomic mass is shown with five significant figures. For elements having no stable nuclides, the value enclosed in brackets indicates the mass number of the longest-lived isotope of the element.

However three such elements (Th, Pa, and U) do have a characteristic terrestrial isotopic composition, and for these an atomic weight is tabulated.

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