Haloalkanes and Haloarenes

Set – 1

Table 10.2: Carbon-Halogen (C—X) Bond Lengths, Bond Enthalpies and Dipole Moments

Bond	Bond length/pm	C-X Bond enthalpies/ $kJmol^{-1}$	Dipole moment/Debye
CH_3–F	139	452	1.847
CH_3– Cl	178	351	1.860
CH_3–Br	193	293	1.830
CH_3–I	214	234	1.636

Q1. Which of the following has the highest bond length?

A. CH_3F
B. CH_3Cl
C. CH_3Br
D. CH_3I

Ans. (D)

Q2. Which of the following has the highest C-X bond enthalpy?

A. CH_3F
B. CH_3Br
C. CH_3I
D. CH_3Cl

Ans. (A)

Q3. Which of the statements is incorrect?

A. Bond length of CH_3Cl 3Br
B. C-X Bond enthalpy of CH_3I 3F
C. Dipole moment of CH_3Br > Dipole moment of CH_3Cl
D. Dipole moment of CH_3F < Dipole moment of CH_3Cl

Ans. (C)

Q4. Which of the following is in increasing order of Dipole moments?

A. $CH_3F3Cl3Br3I$
B. $CH_3I3Br3Cl3F$
C. $CH_3Cl3F3Br3I$
D. $CH_3Br3I3F3Cl$

Ans. (D)

Q5. Compare the following on the basis of bond length

A. $CH_3F > CH_3Cl > CH_3Br > CH_3I$
B. $CH_3F < CH_3Cl < CH_3Br < CH_3I$
C. $CH_3F < CH_3Cl > CH_3Br > CH_3I$
D. D)$CH_3F > CH_3Cl < CH_3Br > CH_3I$

Ans. (B)

Q6. Compare the following on the basis of bond enthalpies

A. CH3F > CH3Cl > CH3Br > CH3I
B. CH3F < CH3Cl < CH3Br < CH3I
C. CH3F < CH3Cl > CH3Br > CH3I
D. CH3F > CH3Cl < CH3Br > CH3I

Ans. (A)

Q7. Compare the following on the basis of dipole moment

A. $CH_3F > CH_3Cl > CH_3Br > CH_3I$
B. $CH_3F < CH_3Cl < CH_3Br < CH_3I$
C. $CH_3F < CH_3Cl > CH_3Br < CH_3I$
D. $CH_3F > CH_3Cl < CH_3Br > CH_3I$

Ans. (C)

Q8. Which of the following has highest bond length

A. CH_3F
B. CH_3Cl
C. CH_3Br
D. CH_3I

Ans. (D)

Q9. Which of the following has highest bond enthalpy

A. CH_3F
B. CH_3Cl
C. CH_3Br
D. CH_3I

Ans. (A)

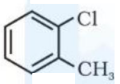
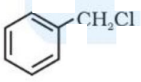
Q10. Which of the following has highest bond length

A. CH_3F
B. CH_3Cl
C. CH_3Br
D. CH_3I

Ans. (B)

Set – 2

Table 10.1: Common and IUPAC Names of some Halides

Structure	Common name	IUPAC name
$CH_3CH_2CH(Cl)CH_3$	sec-Butyl chloride	2-Chlorobutane
$(CH_3)_3CCH_2Br$	neo-Pentyl bromide	1-Bromo-2,2-dimethylpropane
$(CH_3)_3CBr$	tert-Butyl bromide	2-Bromo-2-methylpropane
$CH_2 = CHCl$	Vinyl chloride	Chloroethene
$CH_2 = CHCH_2Br$	Allyl bromide	3-Bromopropene
	*o*-Chlorotoluene	1-Chloro-2-methylbenzene or 2-Chlorotoluene
	Benzyl chloride	Chlorophenylmethane
CH_2Cl_2	Methylene chloride	Dichloromethane
$CHCl_3$	Chloroform	Trichloromethane
$CHBr_3$	Bromoform	Tribromomethane
CCl_4	Carbon tetrachloride	Tetrachloromethane
$CH_3CH_2CH_2F$	n-Propyl fluoride	1-Fluoropropane

Q1. Which of the following is a secondary Butyl chloride?

A. $CH_3CH_2CH(Cl)CH_3$
B. $CH_2(Cl)CH_2CH_2CH_3$
C. $CH_3C(CH_3)(Cl)CH_3$
D. $CH_2(Cl)CH(CH_3)CH_3$

Ans. (A)

Q2. Cl is attached to which hybridized carbon in Benzyl chloride?

A. Sp
B. Sp_2
C. Sp_3
D. None of the above

Ans. (C)

Q3. In 2-Bromo-2-methylpropane bromine is attached to which hybridized carbon?

A. Sp_2
B. Sp
C. Sp_3
D. None of the above

Ans. (C)

Q4. Which of the following is allyl bromide?

A. 3-Bromopropane
B. 2-bromopropane
C. 1-bromopropene
D. 3-bromopropene

Ans. (D)

Q5. Which of the following is chloroform?

A. CH_3Cl
B. CH_2Cl_2

C. CCl_4
D. $ChCl_3$

Ans. (D)

Q6. No. of Sp2hybridized carbon in 1-Chloro-2-methylbenzene is:

A. 6
B. 7
C. 5
D. 4

Ans. (A)

Q7. What is the IUPAC name of o-cholorotoluene?

A. 1-chlorotoluene
B. 2-chlorotoluene
C. 3-chlorotoluene
D. none of above

Ans. (B)

Q8. What is the IUPAC name of vinyl chloride?

A. Chloro ethene
B. Chloro ethane
C. Chloro ethyne
D. none of above

Ans. (A)

Q9. What is the common name of 2-chloro butane?

A. Neo-butyl chloride
B. sec-butyl chloride
C. tert-butyl chloride
D. none of the above

Ans. (B)

Q10. What is the common name of 3-Bromopropene ?

A. Neo-butyl bromide
B. sec-butyl bromide
C. tert-butyl bromide
D. allyl bromide

Ans. (D)

Q11. What is the common name for (CH3)3CBr ?

A. 2-bromo-2-methylpropane
B. tert-butyl bromide
C. allyl bromide
D. Neo-butyl bromide

Ans. (B)

Q12. What is the IUPAC name for (CH3)3CBr ?

A. 2-bromo-2-methylpropane
B. 1-bromo-2-methylpropane
C. 3-bromo-2-methylpropane
D. 2-methylpropane

Ans. (A)

Set – 3

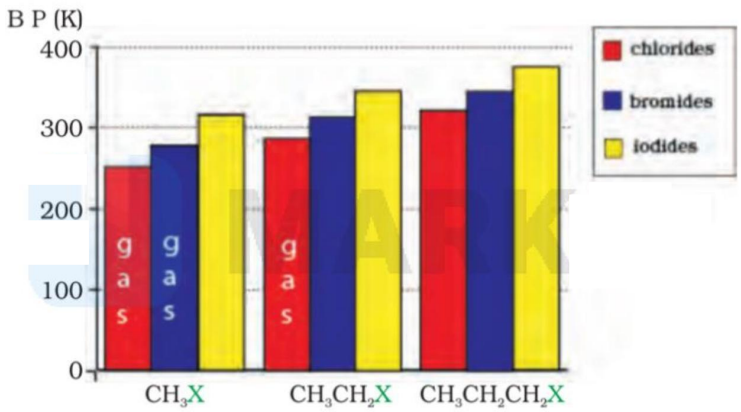


Fig. 10.1: Comparison of boiling points of some alkyl halides

Q1. Which of the following is the correct order of boiling points of alkyl halides?

A. $CH_3Cl3Br3I$
B. $CH_3Br3I3Cl$
C. $CH_3I3Cl3Br$
D. $CH_3Br3Cl3I$

Ans. (A)

Q2. Which of the following doesnâ€™t exist in gaseous form?

A. CH_3Cl
B. CH_3Br
C. CH_3I
D. CH_3CH_2Cl

Ans. (C)

Q3. Which of the following is the correct order of boiling points of alkyl halides?

A. $CH_3CH_2Br3CH_2I3CH_2Cl$
B. $CH_3CH_2Br3CH_2Cl3CH_2I$
C. $CH_3CH_2I3CH_2Cl3CH_2Br$
D. $CH_3CH_2Cl3CH_2Br3CH_2I$

Ans. (D)

Q4. Which of the following is the correct order of boiling points of alkyl halides?

A. $CH_3CH_2CH_2Br3CH_2CH_2Cl3CH_2CH_2I$
B. $CH_3CH_2CH_2Cl3CH_2CH_2Br3CH_2CH_2I$
C. $CH_3CH_2CH_2I3CH_2CH_2Cl3CH_2CH_2Br$
D. $CH_3CH_2CH_2Br3CH_2CH_2I3CH_2CH_2Cl$

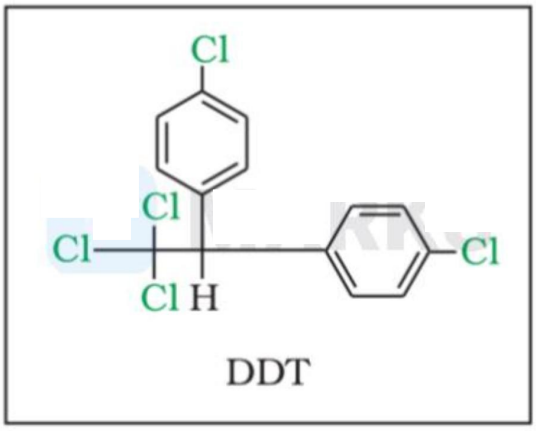
Ans. (B)

Q5. Which of the following is the correct order of boiling points of alkyl halides?

A. CH_3Br3CH_2Cl3I
B. $CH_3Br3I3CH_2Cl$
C. $CH_3CH_2Cl3Br3I$
D. CH_3I3CH_2Cl3Br

Ans. (A)

Set – 4



DDT

Q1. No. of Cl atoms in DDT?

A. 3
B. 4
C. 5
D. 6

Ans. (C)

Q2. No. of Cl atoms attached to Sp3hybridized C in DDT?

A. 1
B. 2
C. 0
D. 3

Ans. (D)

Q3. No. of Cl atoms attached to Sp2hybridized C in DDT?

A. 3
B. 2
C. 1
D. 4

Ans. (B)

Q4. No. of Sp2hybridized C in DDT?

A. 2
B. 6
C. 10
D. 12

Ans. (D)

Q5. No. of H atoms attached to Sp3hybridized C in DDT?

A. 1
B. 2
C. 3
D. 5

Ans. (A)