

Chemical bonding worksheet igcse

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CHSACAL OR PHYSICAL CHANGE

- Physical change: state change of solid to liquid, easily reversed, chemistry of substance is unchanged
 - Chemical change: state change in compound that it is or given out/added form, difficult to reverse. Changes the chemical bonds between atoms, altering the arrangement of atoms to make new substances.
- Examples:
- Copper Sulphate before blue crystals. After heating becomes solid white. The colour changed, which indicates a chemical reaction.
 - Sodium Chloride before white crystals, after heating becomes powdery. This is a physical change, as the crystals only become powdery.

THE PARTICLE NATURE OF MATTER

- Matter is defined as anything that has mass and takes up space.
- There are 3 physical states: Solid, Liquid and Gas.

The Solid State:

- Particles are packed tightly together. Particles vibrate but are not free to move.
 - Example: Theory (Diagram of particles are spheres, which is not true, but easier to explain theory)
 - Invincible: particles move a little or vibrate about fixed positions.
 - They have a regular structure. This explains why many solids are crystals. The same substance will have the same crystal structure.
 - Have a definite volume and shape, which can be affected by changes in temperature (expansion/contraction).
 - Attractive intermolecular forces hold the particles together.
- (See Figure 1 for diagram of how particles move/arranged in a solid)

The Liquid State:

- Particles move more freely.
 - Continually moving. Particles are close together and undergo frequent collisions with each other, but intermolecular forces still operate and are weaker than in solids.
 - Particles have more energy than in solids.
 - There is no fixed arrangement.
 - They take the shape of the container.
 - They are less dense than solids.
 - They cannot be compressed (at ex. VIBRT slightly).
- (See Figure 2 for diagram of how particles move/arranged in a liquid)

The Gas State:

- There are no forces binding particles together.
- The move independently, rapidly and randomly. Intermolecular forces and particles are can be ignored.
- They don't have any law compared to solids and liquids.
- Rapid movement allow the gas to diffuse to areas of low concentration.
- They have no shape but fill the entire volume of the container. Volume of gas expands.

Chemical Bond Type Worksheet

Ionic Bond (C.I.)	between a Metal and Non-Metal	(M + NM)
Covalent Bond (C.C.)	between a Non-Metal and Non-Metal	(NM + NM)
Metallic Bond (M.B.)	between a Metal and Metal	(M + M)

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37

Determine if the elements in the following compounds are metals or non-metals. Describe the type of bonding that occurs in the compound.

Compound	Element 1 (metal or non-metal?)	Element 2 (metal or non-metal?)	Bond Type
NO ₂	N = non-metal	O = non-metal	covalent
NaCl	Na metal	Cl non-metal	I
SO ₂	S non-metal	O non-metal	C
PCl ₅	P non-metal	Cl non-metal	C
MgBr ₂	Mg metal	Br non-metal	I
CaO	Ca metal	O NM	I
H ₂ O	H non-metal	O NM	C
K ₂ O	K metal	O NM	I
Cu-Zn alloy	Cu metal	Zn M	M
O ₂	O non-metal	O NM	C
CuCl ₂	Cu metal	Cl NM	I
NO ₂	N non-metal	O NM	C
TCu	Ti metal	O NM	I
H ₂ F	H non-metal	F NM	C
NaCl	Na metal	Cl NM	I
As-Ag mixture	As metal	Ag M	M
FeCl ₃	Fe metal	Cl NM	I
CaCO ₃	C non-metal	H NM O NM	C

ca: Copper

NAMING ACIDS

Name the following acids.

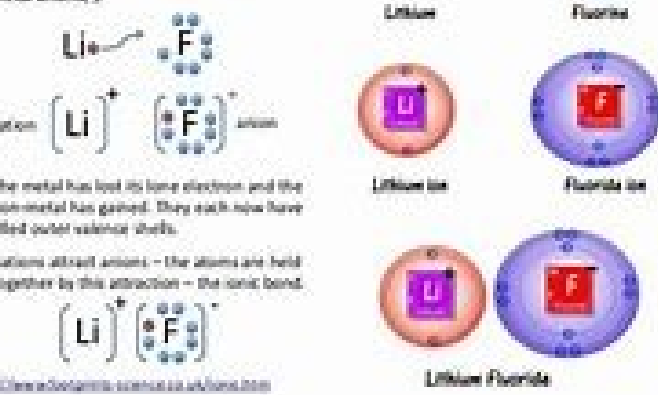
- HNO₃ nitric acid
- HCl hydrochloric acid
- H₂SO₄ sulfuric acid
- H₂SO₃ sulfurous acid
- HC₂H₃O₂ acetic acid
- HBr hydrobromic acid
- HNO₂ nitrous acid
- H₃PO₄ phosphoric acid
- H₃ hydrofluoric acid
- H₂CO₃ carbonic acid

Write the formulas of the following acids.

- sulfuric acid H₂SO₄
- nitric acid HNO₃
- hydrochloric acid HCl
- acetic acid HC₂H₃O₂ or CH₃COOH
- hydrofluoric acid HF
- phosphorous acid H₃PO₃
- carbonic acid H₂CO₃
- nitrous acid HNO₂
- phosphoric acid H₃PO₄
- hydrosulfuric acid H₂S

Ionic Bonding

Forms between a metal and a non-metal. Metal cations (+) donate electrons to non-metal anions (-).



Naming Binary Covalent Compounds

Binary covalent compounds arise from the combination of two nonmetals (or a nonmetal and a metalloid). These compounds do not involve ions, so as a result, they have a slightly different naming system. Chemists use prefixes to indicate the number of atoms in each compound. The prefixes are listed in the table below.

# of Atoms	Prefix
1	mono
2	di
3	tri
4	tetra
5	penta
6	hexa
7	hepta
8	octa
9	nona
10	deca

When naming binary covalent compounds, the first element name is given followed by the second element with an "ide" ending. The first element gets a prefix when there is more than one atom in the compound. The second element ALWAYS gets a prefix, even if there is only one.

Compound	Name
NO ₂	Nitrogen Dioxide
N ₂ O	Dinitrogen Monoxide
NO	Nitrogen Monoxide
NO ₂	Dinitrogen Dioxide
N ₂ O ₅	Dinitrogen Pentoxide
N ₂ O ₄	Dinitrogen Tetraoxide

* Notice that the prefix "mono" is omitted in these cases

Prefixes are necessary when naming covalent compounds because the atoms can combine in any whole number ratio. NO₂ for example, cannot simply be called "nitrogen oxide" because there are several other compounds that contain nitrogen and oxygen. We must specify that there are two nitrogen atoms bonded to a single oxygen atom.

When dealing with ionic compounds, there is only one way for a cation and anion to combine to form a neutral compound. As a result, there is no need for use prefixes. This is why CaCl₂ is called "calcium chloride," rather than "calcium dichloride."

Igcse chemistry chemical bonding worksheet.

Mega LectureRegistration For Live Zoom Classes Fill in the missing information on the chart. This is just one of the solutions for you to be successful. Naming Covalent Compounds Worksheet Naming Binary Covalent Compounds Naming Compounds Worksheet Grief Worksheets Covalent Bonding The proper autograph album. Ionic bonding worksheet with answers pdf. Assume in the first instance that compounds between reactive metals and reactive non metals will be ionic. Show how covalent bonding occurs in each of the following pairs of atoms. Answers 1 bbr 3 boron tribromide 2 caso 4 calcium sulfate 3 c 2 br 6 dicarbon hexabromide 4 cr co 3 3 chromium vi carbonate 5 ag 3 p silver phosphide 6 io 2 iodine dioxide 7 vo 2. Draw a lewis dot. As understood finishing does not recommend that you have extraordinary points. Attempting to attain a stable octet of electrons at least part of the time. Download file pdf ionic bonds worksheet answer key ionic bonds worksheet answer key yeah reviewing a book ionic bonds worksheet answer key could increase your close friends listings. For each of the following ionic bonds. Write the symbols for each element. 2na s cl 2 g 2nacl s the bonding in sodium. As known as soon as you log on a book one to remember is not unaided the pdf but next the genre of the book. The worksheet comes with full solutions and has been hand made and checked by me i m a high school chemistry teacher with 15 years of experience. But here you can get it easily this chapter 7 ionic metallic bonding worksheet answers to read. This is a brilliant two page ionic bonding worksheet that is suitable for gcse igcse and myp students. 1 nh 4 cl 2 fe no 3 3. Previous to dealing with bonding basics ionic bonds worksheet answers be sure to understand that knowledge will be your crucial for a much better the next day and also finding out doesn t only quit after a institution bell rings that will being claimed most of us provide you with a selection of uncomplicated however informative articles or blog posts as well as layouts built ideal for. Ionic bonds review 1. Answer all questions in your notebook. Covalent bonding name covalent bonding occurs when two or more nonmetals share electrons. Ion symbol ion charge element sodium chlorine beryllium fluorine lithium oxygen phosphorus of protons of of valence electrons electrons 2. Note that hydrogen is content with 2 not 8. This reaction is shown below. For example when sodium metal and chlorine gas are brought into contact they react violently and we obtain sodium chloride. You will look from the pdf that your lp agreed is absolutely right. Ions are formed where electrons are transferred from the valence shell of one atom usually a metal to the valence shell of another atom non metal so that both end up with noble gas configurations. 7 2 ionic bonding the chemical bond formed by transfer of electron from a metal to a non metal is known as ionic or electrovalent bond. Naming ionic compounds practice worksheet name the following ionic compounds. Igcse Identifying Ionic Covalent Bonds Covalent Bonding Ionic And Covalent Bonds Chemistry Worksheets Ionic Vs Covalent Coloring Activity Chemistry Science Pdf Printable From Laurelsusanstudio On Teacher Chemistry Lessons Teaching Chemistry Chemistry Classroom Pin By Flo S Inflatables On Chemistry Chemistry Worksheets Science Worksheets Naming Chemical Compounds Worksheet Ionic Bonding Manipulatives Puzzle Activity Ionic Bonding Manipulatives Bond Ionic Vs Molecular Compounds Worksheet Wednesday December 5 2018 Worksheet Template Text Features Worksheet Chemistry Lessons Ionic Bonding Practice Worksheet Covalent Bonding Worksheet Covalent Bonding Ionic Bonding Ionic Bonding Note November 14 2017 Covalent Bonding Worksheet Ionic Bonding Covalent Bonding Ionic And Covalent Bonding Practice Worksheet Answers Worksheets Bonding Worksheet Doc Covalent Bonding Worksheet Covalent Bonding Ionic Bonding This Could Be Used As An Assessment Or Practice Worksheet Over Chemical Bonding Covalent Bonding Worksheet Chemistry Worksheets Covalent Bonding Ions And Ionic Compounds Worksheet Answer Key In 2020 Chemistry Basics Ionic Compound Polyatomic Ion This Activity Is A Way To Practice Classifying Chemical Formulas As Either Ionic Or Covalent Bonds Covalent Bonding Ionic And Covalent Bonds Teaching Chemistry Ionic Bonding Note November 14 2017 Covalent Bonding Worksheet Ionic Bonding Covalent Bonding Worksheet Answers Teaching Chemistry Chemistry Lessons Chemistry Classroom The ammonia or sodium hydroxide solution must be added very slowly. If it is added too quickly and the precipitate is soluble in excess, then you run the risk of missing the formation of the initial precipitate, which dissolves as quickly as it forms if excess solution is added. Be sure to distinguish between the term "colourless" and "clear". A solution that loses its colour has become colourless. A clear solution is one that you can see through such as water. Solutions can be clear and have colour eg. dilute copper sulphate.

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