ANSWERS: **Types of substances**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Name** of substance | Type of **substance** | Type of **particle** present | **Bond type**  (attractive forces between particles) |
| **2023** | **Pd(s)** | metallic, 3D | **cations in a sea of delocalised electrons** | **metallic bond** |
| **2022** | **LiBr (s)** | ionic, 3D | **oppositely charged ions** | **ionic bond** |
| **2022** | **CCl3F(s)** | molecular | **molecules** | **strong covalent bond between atoms**  **weak intermolecular force between molecules** |
| **2022** | **C (diamond)(s)** | covalent network, 3D | **atoms** | **strong covalent bond between atoms** |
| **2021** | **O2(s)** | molecular | **molecules** | **strong covalent bond between atoms**  **weak intermolecular force between molecules** |
| **2019** | **NaI(s)** | ionic, 3D | **oppositely charged ions** | **ionic bond** |
| **2017** | **Al (s)** | metallic, 3D | **cations in a sea of delocalised electrons** | **metallic bond** |
| **2017**  **2010**  **2008** | **MgCl2 (s)** | ionic, 3D | **oppositely charged ions** | **ionic bond** |
| **2017**  **2008** | **S8 (s)** | molecular | **molecules** | **strong covalent bond between atoms**  **weak intermolecular force between molecules** |
| **2016** | **ZnCl2 (s)** | ionic, 3D | **oppositely charged ions** | **ionic bond** |
| **2021**  **2016**  **2013** | **C *(graphite)*(s)** | covalent network,  2D | **atoms** | **strong covalent bond between atoms**  **weak intermolecular force between layers** |
| **2016**  **2009** | **CO2 (s)** | molecular | **molecules** | **strong covalent bond between atoms**  **weak intermolecular force between molecules** |
| **2021**  **2015**  **2013** | **Cu(s)** | metallic, 3D | **cations in a sea of delocalised electrons** | **metallic bond** |
| **2015** | **PCl3(s)** | ionic, 3D | **oppositely charged ions** | **ionic bond** |
| **2013**  **2012**  **2010**  **2009** | **SiO2(s)** | covalent network, 3D | atoms | **strong covalent bond between atoms** |
| **2013** | **KCl(s)** | ionic, 3D | **oppositely charged ions** | **ionic bond** |
| **2014**  **2008** | **Mg(s)** | metallic, 3D | **cations in a sea of delocalised electrons** | **metallic bond** |
| **2019**  **2014**  **2012** | **I2 (s)** | molecular | **molecules** | **strong covalent bond between atoms**  **weak intermolecular force between layers** |
| **2013**  **2009** | **Cl2 (s)** | molecular | **molecules** | **strong covalent bond between atoms**  **weak intermolecular force between molecules** |
| **2013**  **2009** | **CuCl2(s)** | ionic, 3D | **oppositely charged ions** | **ionic bond** |
| **2012** | **NH3** | molecular | **molecules** | **weak intermolecular force between molecules** |
| **2012** | **Zn** | metallic, 3D | **cations in a sea of delocalised electrons** | **metallic bond** |
| **2019**  **2011** | **Na (s)** | metallic, 3D | **cations in a sea of delocalised electrons** | **metallic bond** |
| **2011** | **P4 (s)** | molecular | **molecules** | **strong covalent bond between atoms**  **weak intermolecular force between molecules** |
| **2011** | **MgO (s)** | ionic, 3D | **oppositely charged ions** | **ionic bond** |
| **2011** | **SO3 (s)** | molecular | **molecules** | **strong covalent bond between atoms**  **weak intermolecular force between molecules** |

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