

The background features a dark blue grid. A wavy, multi-colored ribbon (blue, green, red, purple) flows from the bottom left towards the center. On the right side, a large, 3D-style arrow points upwards and to the right, filled with a pattern of small, colorful characters. To the right of the arrow is a vertical axis with tick marks and numbers: 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50. A horizontal white bar is at the top right. At the bottom, a white rounded rectangle contains the word 'LOGO' in blue.

Марганец

LOGO

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Mn₂O₇, HMnO₄ – сильные окислители

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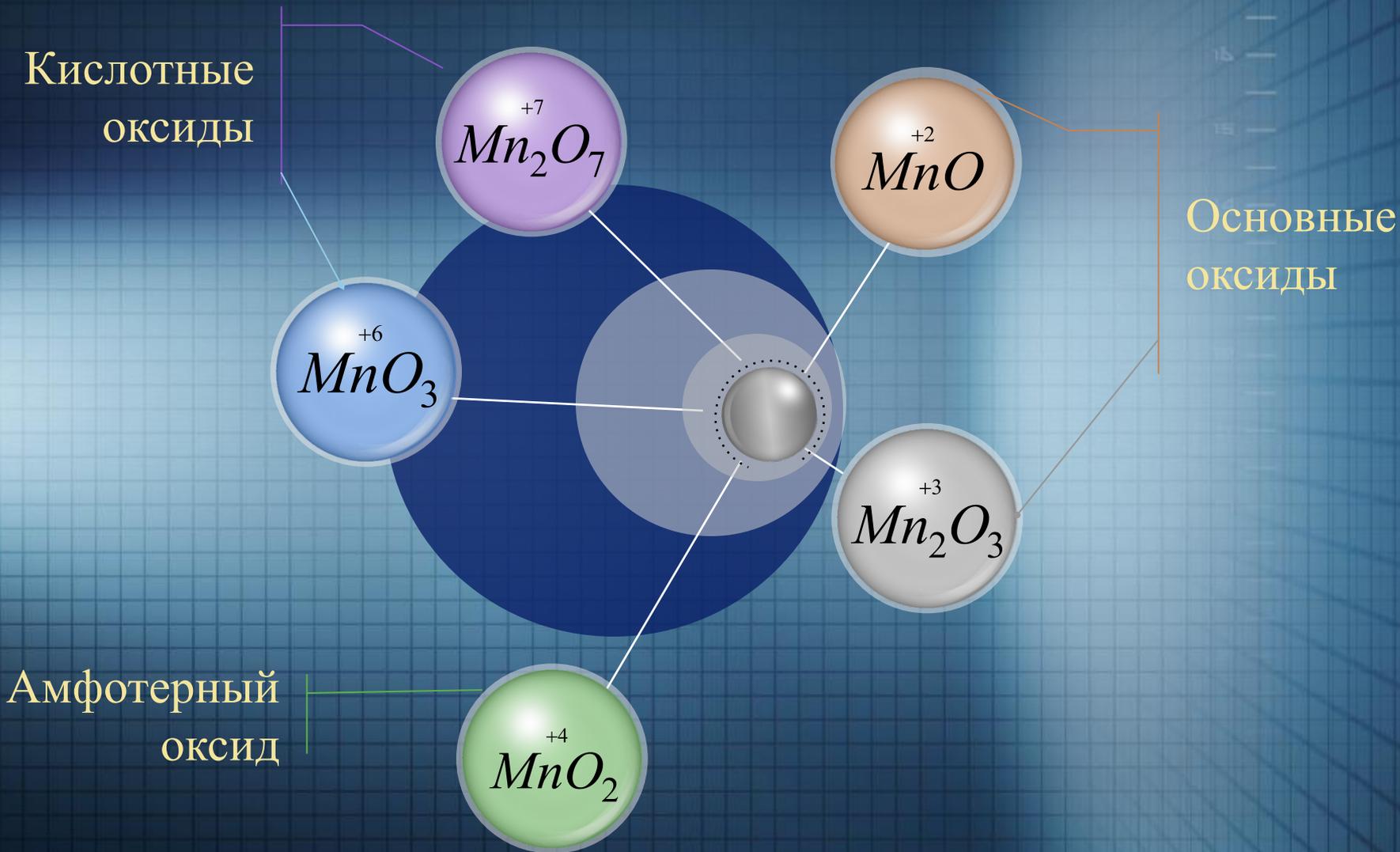
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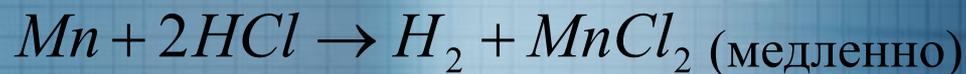
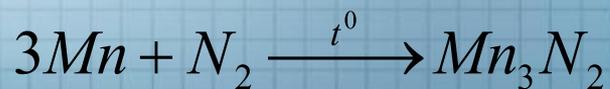
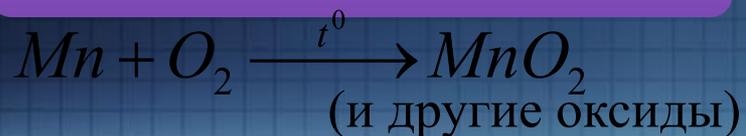
Задание



IV период, VII группа, побочная подгруппа

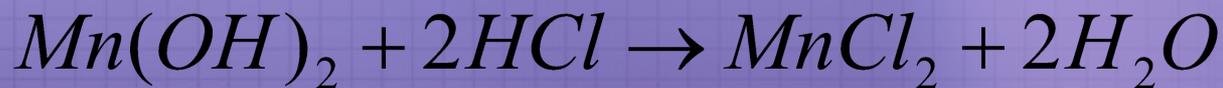
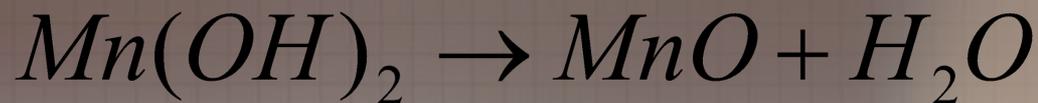


Химические свойства

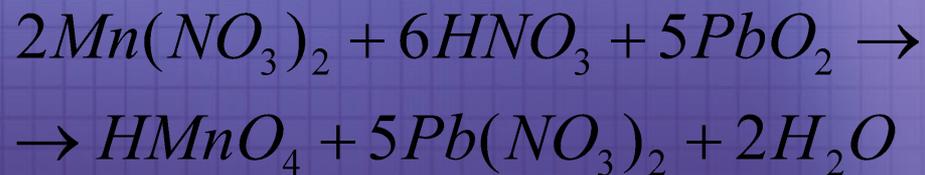
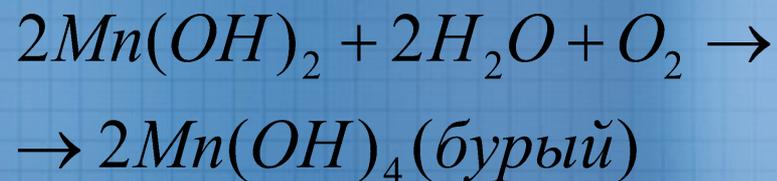
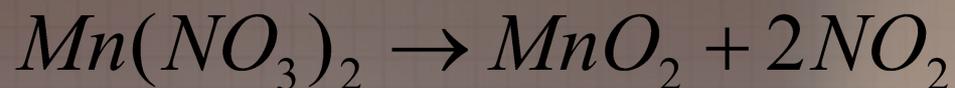


где X=NO, N₂O, N₂, NH₃, NH₄ в зависимости от концентрации HNO₃

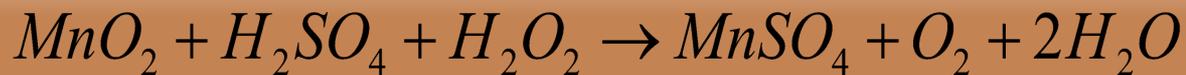
*$MnO, Mn(OH)_2$ –
основные свойства*



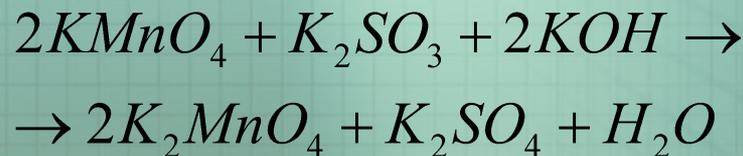
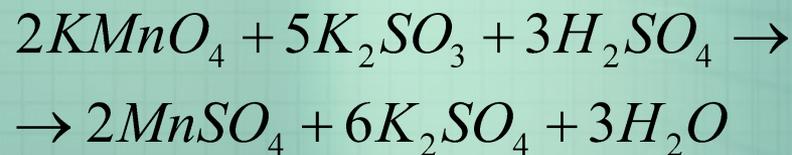
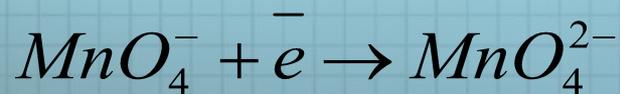
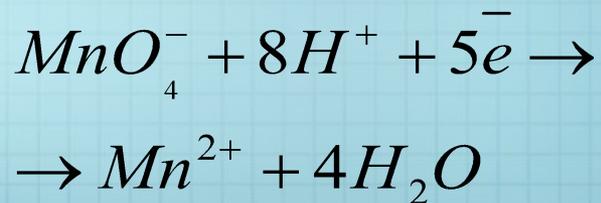
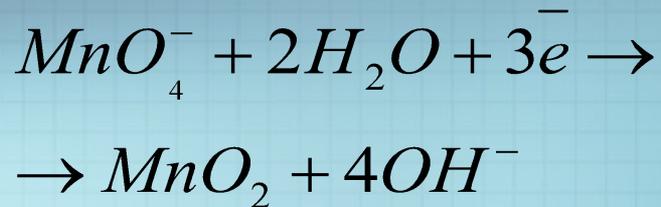
Mn^{+2} - восстановитель



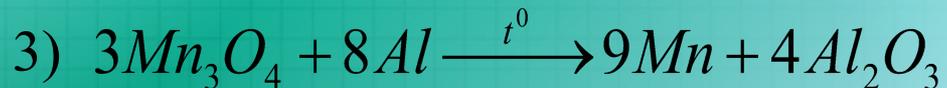
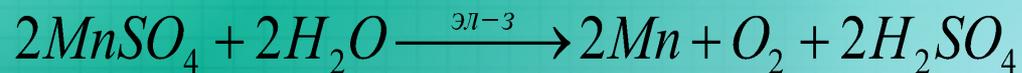
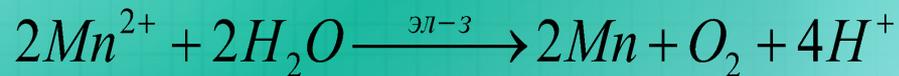
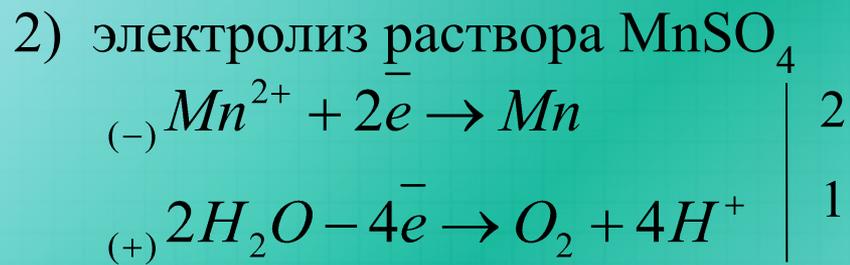
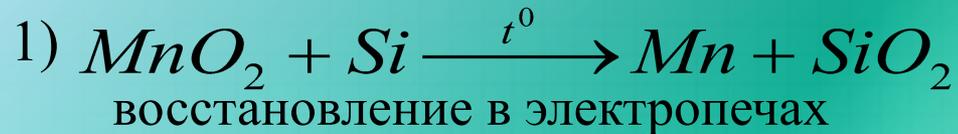
MnO_2 , $Mn(OH)_4$ или H_2MnO_3
слабо выраженные
амфотерные свойства



Mn_2O_7 , $HMnO_4^-$ –
сильные окислители



Получение



Применение

твёрдость

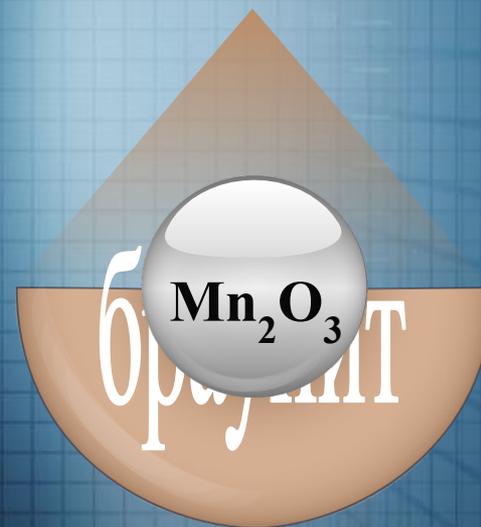
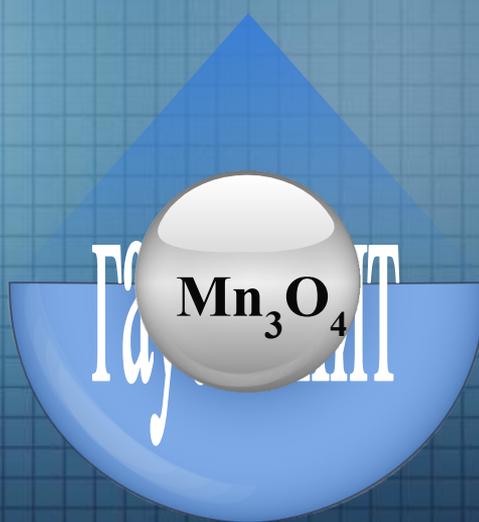
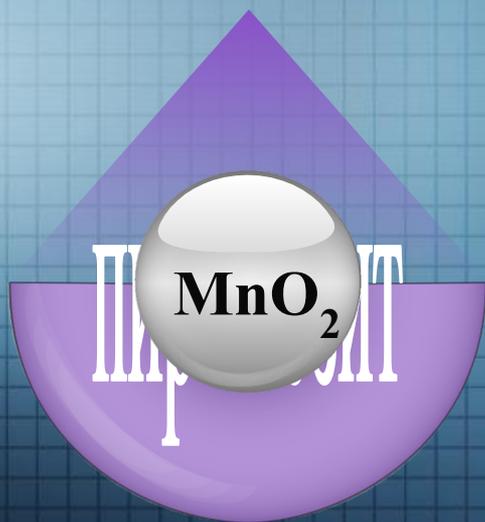
прочность

устойчивость к коррозии

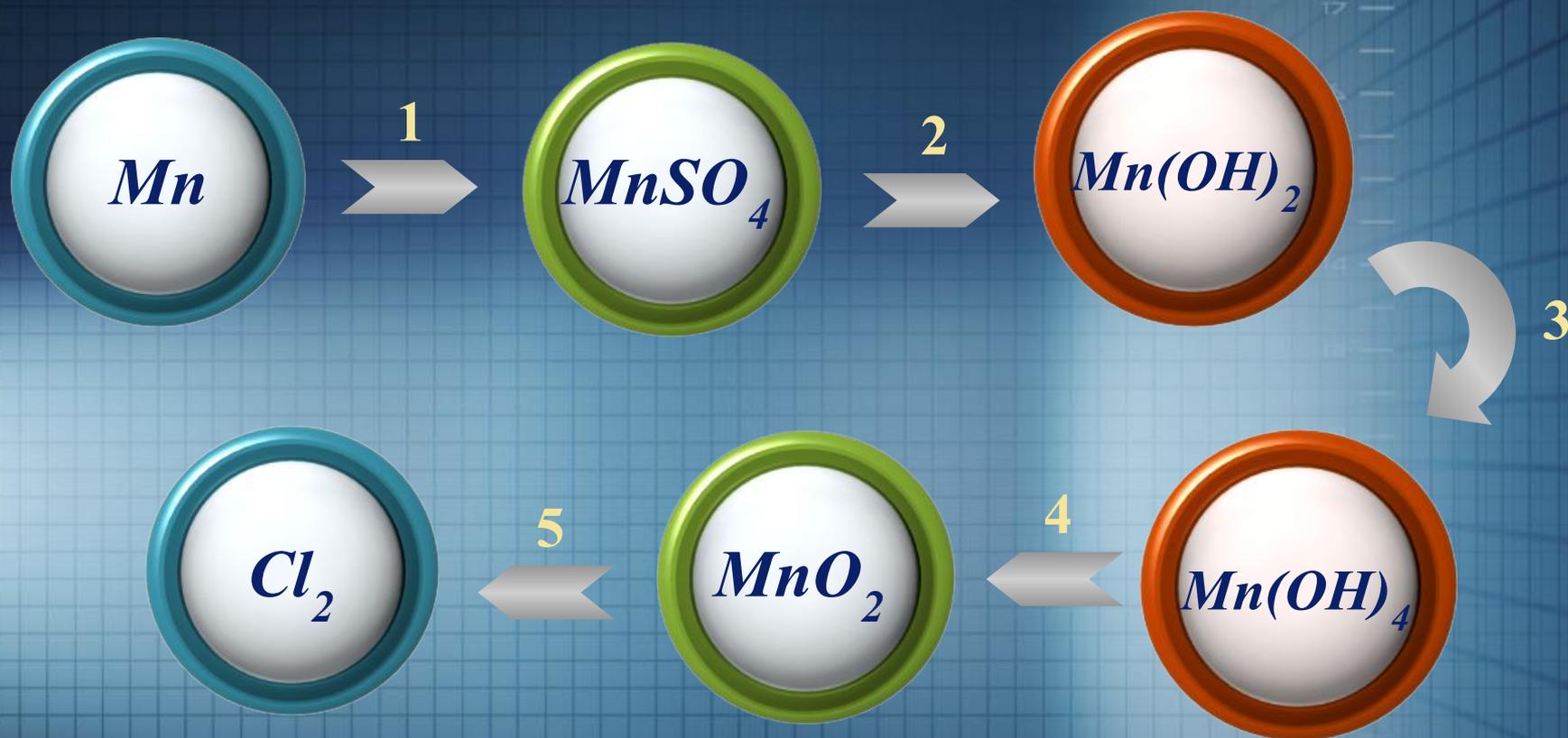
Производство
легированных сталей

В природе

$\omega(\text{Mn}) = 0,09\%$



Задание



Ответ

1



2



3



4



5





Спасибо за внимание!

LOGO