Таблица S1.

Результаты исследования системы CdF2- LaF3 методом ДТА

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № | Моль.% LaF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС |
| 1. | 5,0 | 1058 | 1048 |  |
| 2. | 10,0 | 1040 | 1029 |  |
| 3. | 12,5 | 1024 |  |  |
| 4. | 15,0 | 1025 |  | 1016 |
| 5. | 20,0 | 1074 |  | 1015 |
| 6. | 25,0 | 1115 |  | 1011 |
| 7. | 30,0 | 1150 |  | 1014 |
| 8. | 40,0 |  |  | 1014 |
| 9. | 50,0 |  |  | 1014 |
| 10. | 60,0 |  |  | 1013 |
| 11. | 70,0 |  |  | 1016 |
| 12. | 80,0 |  |  | 1017 |
| 13. | 90,0 |  |  | 1017 |
| 14. | 100,0 | 1500 |  |  |

Таблица S2.

Результаты исследования систем CdF2- СеF3 методом ДТА

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № | Моль.% CeF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС |
| 1. | 5,0 | 1069 | 1054 |  |
| 2. | 10,0 | 1056 | 1048 |  |
| 3. | 15,0 | 1052 | 1053 |  |
| 4. | 20,0 | 1034 | 1031 |  |
| 5. | 25,0 | 1033 | 1028 |  |
| 6. | 30,0 | 1030 |  | 1024 |
| 7. | 35,0 | 1041 |  | 1032 |
| 8. | 40,0 | 1099 |  | 1027 |
| 9. | 45,0 |  |  | 1029 |
| 10. | 50,0 | 1165 |  | 1024 |
| 11. | 60,0 |  |  | 1025 |
| 12. | 70,0 |  |  | 1025 |
| 13. | 80,0 |  |  | 1026 |
| 14. | 85,0 |  |  | 1034 |
| 15. | 87,5 |  | 1044 | - |
| 16. | 100 | 1443 |  |  |

Таблица S3.

Результаты исследования систем CdF2- PrF3 методом ДТА

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № | Моль.% PrF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС |
| 1. |  | 1060 | 1060 |  |
| 2. | 15,0 | 1054 | 1052 |  |
| 3. | 20,0 | 1048 | 1046 |  |
| 4. | 25,0 | 1046 |  | 1040 |
| 5. | 30,0 | 1040 |  | 1040 |
| 6. | 35,0 | 1050 |  | 1038 |
| 7. | 40,0 | 1100 |  | 1040 |
| 8. | 45,0 | 1136 |  | 1038 |
| 9. | 50,0 | 1166 |  | 1040 |
| 10. | 55,0 | 1192 |  | 1040 |
| 11. | 60,0 | 1220 |  | 1040 |
| 12. | 70,0 | - |  | 1040 |
| 13. | 80,0 | - |  | 1040 |
| 14. | 90,0 | - |  | 1040 |
| 15. | 100 | 1402 |  |  |

Таблица S4.

Результаты исследования систем CdF2- NdF3 методом ДТА

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № | Моль.% NdF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС |
| 1. | 10,0 | 1062 | 1062 |  |
| 2. | 20,0 | 1052 | 1052 |  |
| 3. | 25,0 | 1050 | 1048 |  |
| 4. | 30,0 | 1048 |  | 1047 |
| 5. | 35,0 | 1047 |  | 1047 |
| 6. | 40,0 | 1072 |  | 1047 |
| 7. | 45,0 | 1119 |  | 1046 |
| 8. | 50,0 | 1160 |  | 1047 |
| 9. | 60,0 | 1235 |  | 1048 |
| 10. | 70,0 | 1260 |  | 1048 |
| 11. | 80,0 | - |  | 1048 |
| 12. | 85,0 |  |  | 1046 |
| 13. | 100 | 1372 |  |  |

Таблица S5.

Результаты исследования систем CdF2- SmF3 методом ДТА

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № | Моль.% SmF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС |
| 1. | 5,0 | 1079 | 1078 |  |
| 2. | 10,0 | 1071 | 1072 |  |
| 3. | 15,0 | 1071 | 1066 |  |
| 4. | 17,5 | 1076 | 1065 |  |
| 5. | 20,0 | 1075 | 1070 |  |
| 6. | 25,0 | 1066 | 1061 |  |
| 7. | 30,0 | 1071 |  | 1053 |
| 8. | 35,0 | 1055 |  | 1055 |
| 9. | 40,0 | 1061 |  | 1053 |
| 10. | 50,0 | 1110 |  | 1050 |
| 11. | 60,0 | 1167 |  | 1052 |
| 12. | 70,0 | 1222 |  | 1053 |
| 13. | 80,0 | 1252 |  | 1053 |
| 14. | 90,0 | 1281 | 1273 |  |
| 15. | 95,0 | 1298 | 1296 |  |
| 16. | 100 | 1305 |  |  |

Таблица S6.

Результаты исследования систем CdF2- GdF3 методом ДТА

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № | Моль.% GdF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС |
| 1. | 10,0 | 1075 | 1070 |  |
| 2. | 15,0 | 1068 | 1068 |  |
| 3. | 20,0 | 1068 | 1068 |  |
| 4. | 25,0 | 1068 | 1062 |  |
| 5. | 30,0 | 1062 | 1058 |  |
| 6. | 35,0 | 1053 |  | 1036 |
| 7. | 40,0 | 1043 |  | 1036 |
| 8. | 45,0 | 1033 |  | 1032 |
| 9. | 47,5 | 1058 |  | 1036 |
| 10. | 50,0 | 1090 |  | 1036 |
| 11. | 60,0 | 1124 |  | 1036 |
| 12. | 70,0 | 1168 |  | 1037 |
| 13. | 75,0 | 1180 |  | 1036 |
| 14. | 77,5 | - |  | 1036 |
| 15. | 80,0 | 1202 |  | 1036 |
| 16. | 82,5 | 1205 | - |  |
| 17. | 85,0 | 1217 | 1183 |  |
| 18. | 90,0 | 1225 | 1205 |  |
| 19. | 95,0 | 1225 | 1224 |  |
| 20. | 100 | 1230 | 1070 |  |

Таблица S7.

Результаты исследования систем CdF2- TbF3 методом ДТА

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| № | Моль.% TbF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС | T4, оС |
| 1. | 10,0 | 1075 | 1074 |  |  |
| 2. | 20,0 | 1072 | 1067 |  |  |
| 3. | 25,0 | 1061 | 1056 |  |  |
| 4. | 30,0 | 1056 | 1049 |  |  |
| 5. | 35,0 |  |  | 1014 |  |
| 6. | 40,0 | 1035 |  | 1014 |  |
| 7. | 45,0 | 1018 |  | 1015 |  |
| 8. | 50,0 | 1025 |  | 1016 |  |
| 9. | 55,0 | 1032 |  | 1015 |  |
| 10. | 60,0 | 1069 |  | 1016 |  |
| 11. | 65,0 | 1092 |  | 1016 |  |
| 12. | 70,0 | 1111 |  | 1014 |  |
| 13. | 80,0 | 1137 |  | 1014 |  |
| 14. | 82,5 | 1150 |  |  | 800 |
| 15. | 85,0 | 1155 | 1072 |  | 820 |
| 16. | 90,0 | 1161 | 1154 |  | 810 |
| 17. | 75,0 | 1123 |  | 1016 |  |
| 18. | 95,0 | 1159 | 1157 |  |  |
| 19. | 100 | 1166 |  |  |  |

Таблица S8.

Результаты исследования систем CdF2- DyF3 методом ДТА

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| № | Моль.% DyF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС | T4, оС |
| 1. | 10,0 | 1074 | 1067 |  |  |
| 2. | 20,0 | 1073 | 1065 |  |  |
| 3. | 30,0 | 1047 | 1035 |  |  |
| 4. | 35,0 | 1036 |  | 994 |  |
| 5. | 40,0 | 1019 |  | 996 |  |
| б. | 45,0 | 1006 |  | 992 |  |
| 7. | 50,0 | 999 |  | 990 |  |
| 8. | 55,0 | 1012 |  | 992 |  |
| 9. | 65,0 | 1044 |  | 993 |  |
| 10. | 70,0 | 1067 |  | 989 |  |
| 11. | 75,0 | 1081 |  | 993 |  |
| 12. | 77,5 | 1086 |  | 992 |  |
| 13. | 80,0 | 1095 |  | 994 |  |
| 14. | 85,0 | 1110 | 1100 | - | 850 |
| 15. | 90,0 | 1131 | 1100 | - | 850 |
| 16. | 92,5 | 1126 | 1100 | - | 850 |
| 17. | 95,0 | 1125 | 1100 | - | 850 |
| 18. | 100 | 1147 |  |  |  |

Таблица S9.

Результаты исследования систем CdF2- HoF3 методом ДТА

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| № | Моль.% HoF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС | T4, оС |
| 1. | 5,0 | 1075 | 1072 |  |  |
| 2. | 10,0 | 1078 | 1074 |  |  |
| 3. | 15,0 | 1075 | 1070 |  |  |
| 4. | 20,0 | 1070 | 1062 |  |  |
| 5. | 30,0 | 1050 | 1030 |  |  |
| 6. | 35,0 | - | 974 |  |  |
| 7. | 40,0 | 1015 | 981 | 879 |  |
| 8. | 50,0 | 986 | 981 | 885 |  |
| 9. | 55,0 | 999 | 979 | 882 |  |
| 10. | 60,0 | 1020 | 986 | 880 |  |
| 11. | 65,0 | 1029 | 982 | 880 |  |
| 12. | 70,0 | 1038 | 977 | 884 |  |
| 13. | 75,0 | 1057 | 982 | 882 |  |
| 14. | 80,0 | 1069 | - | 884 | 1060 |
| 15. | 85,0 | 1088 | - | 880 | 1062 |
| 16. | 90,0 | 1108 | - | 883 | 1064 |
| 17. | 95,0 | 1133 | - | 882 | 1064 |
| 18. | 97,5 | 1137 | - | 882 | 1061 |
| 19. | 100 | 1140 |  |  |  |

Таблица S10.

Результаты исследования систем CdF2- ErF3 методом ДТА

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| № | Моль.% ErF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС | T4, оС |
| 1. | 5,0 | 1078 | 1078 |  |  |
| 2. | 10,0 | 1080 | 1080 |  |  |
| 3. | 15,0 | 1078 | 1078 |  |  |
| 4. | 20,0 | 1068 | 1063 |  |  |
| 5. | 25,0 | 1052 | 1049 |  |  |
| 6. | 30,0 | 1035 | 1026 |  |  |
| 7. | 32,5 | 1032 | 960 |  |  |
| 8. | 35,0 | 1016 | 958 |  |  |
| 9. | 37,5 | 1022 | 970 | 906 |  |
| 10. | 40,0 | 1004 | 958 | 900 |  |
| 11. | 50,0 | 977 | 960 | 900 |  |
| 12. | 55,0 | 971 | 960 | 898 |  |
| 13. | 60,0 | 977 | 964 | 900 |  |
| 14. | 65,0 | 990 | 960 | - |  |
| 15. | 70,0 | 1000 | 960 | 902 |  |
| 16. | 75,0 | 1015 |  | 902 | 1009 |
| 17. | 77,5 | 1029 | - | 897 | 1009 |
| 18. | 80,0 | 1053 | - | 894 | 1000 |
| 19. | 82,5 | 1059 | - | 897 | 1000 |
| 20. | 85,0 | 1070 | - | 902 | 1005 |
| 21. | 87,5 | 1080 | - | 896 | 1009 |
| 22. | 90,0 | 1090 | - | 900 | 1000 |
| 23. | 91,0 | 1114 | 1093 | 900 | 1008 |
| 24. | 92,5 | - | 1089 | 900 | 997 |
| 25. | 95,0 | 1123 | - | 909 | 1002 |
| 26. | 97,5 | 1135 | 1087 | - | 1000 |

Таблица S11.

Результаты исследования систем CdF2- TmF3 методом ДТА

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| № | Моль.% TmF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС | T4, оС | T5, оС | T6, оС |
| 1. | 5,0 | 1075 | 1075 |  |  |  |  |
| 2. | 10,0 | 1074 | 1070 |  |  |  |  |
| 3. | 15,0 | 1068 | 1062 |  |  |  |  |
| 4. | 20,0 | 1060 | 1047 |  |  |  |  |
| 5. | 25,0 | 1046 | 1024 |  |  |  |  |
| 6. | 30,0 | 1020 | 988 |  |  |  |  |
| 7. | 32,5 | 1019 |  | 924 |  |  |  |
| 8. | 35,0 | 1016 |  | 922 |  |  |  |
| 9. | 40,0 | 990 |  | 920 | 900 |  |  |
| 10. | 45,0 | 958 |  | 920 | 904 |  |  |
| 11. | 50,0 | 942 |  | 925 | 907 |  |  |
| 12. | 55,0 | 932 |  | 926 | 893 |  |  |
| 13. | 57,5 | 930 |  | 922 | 898 |  |  |
| 14. | 60,0 | 935 |  | 924 | 900 |  |  |
| 15. | 65,0 | 922 |  | 922 | 904 | 934 |  |
| 16. | 70,0 | 977 |  | 922 | 906 | 940 |  |
| 17. | 72,5 | 990 |  | 924 | 900 | 946 |  |
| 18. | 75,0 | 1008 |  | 924 | 906 | 940 | 994 |
| 19. | 80,0 | 1066 |  | - | 906 | 940 | 993 |
| 20. | 85,0 | 1108 |  | - | 904 | 936 | 996 |
| 21. | 90,0 | - |  |  | 905 | 940 | 999 |
| 22. | 92,5 | 1126 |  |  | 896 | 930 | 996 |
| 23. | 95,0 | 1140 |  |  | 914 | 1030 | 996 |
| 24. | 97,5 | 1140 | 1125 |  |  | 1036 | 998 |
| 25. | 100 | 1159 |  |  |  | 1047 |  |

Таблица S12.

Результаты исследования систем CdF2- YbF3 методом ДТА

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| № | Моль.% YbF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС | T4, оС | T5, оС | T6, оС |
| 1. | 2,5 | 1077 | 1073 |  |  |  |  |
| 2. | 5,0 | 1079 | 1079 |  |  |  |  |
| 3. | 10,0 | 1075 | 1069 |  |  |  |  |
| 4. | 15,0 | 1067 | 1064 |  |  |  |  |
| 5. | 20,0 | 1059 | 1049 |  |  |  |  |
| 6. | 25,0 | 1044 | 1024 |  |  |  |  |
| 7. | 30,0 | 1022 | 1062 |  |  |  |  |
| 8. | 32,5 | 1011 |  | 905 |  |  |  |
| 9. | 35,0 | 1003 |  | 902 |  |  |  |
| 10. | 40,0 | 985 |  | 906 |  |  |  |
| 11. | 45,0 | 965 |  | 904 |  |  |  |
| 12. | 50,0 | 937 |  | 903 |  |  |  |
| 13. | 52,5 | 923 |  | 904 |  |  |  |
| 14. | 55,0 | 918 |  | 901 |  |  |  |
| 15. | 57,5 | 924 |  | 903 | 910 |  |  |
| 16. | 60,0 | 960 |  | 904 | 911 |  |  |
| 17. | 65,0 | 991 |  | 903 | 912 |  |  |
| 18. | 70,0 | 1022 |  | 901 | 907 |  |  |
| 19. | 75,0 | 1047 |  | 903 | 913 | 929 |  |
| 20. | 80,0 | 1077 |  |  | 910 | 952 |  |
| 21. | 85,0 | 1102 | 1054 | 900 | 914 | 960 |  |
| 22. | 90,0 | 1125 | 1085 |  | 907 | 971 |  |
| 23. | 92,5 | 1138 |  |  | 908 | 979 |  |
| 24. | 95,0 | 1146 | 1120 |  |  | 979 | 932 |
| 25. | 97,5 | 1152 |  |  |  | 980 | 958 |
| 26. | 100 | 1164 |  |  |  | 982 |  |

Таблица S13.

Результаты исследования систем CdF2- LuF3 методом ДТА.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| № | Моль.% LuF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС | T4, оС | T5, оС | T6, оС |
| 1. | 5,0 | 1075 | 1075 |  |  |  |  |
| 2. | 10,0 | 1075 | 1073 |  |  |  |  |
| 3. | 15,0 | 1072 | 1072 |  |  |  |  |
| 4. | 20,0 | 1054 | 1041 |  |  |  |  |
| 5. | 25,0 | 1030 | 1016 |  |  |  |  |
| 6. | 30,0 | 1023 |  | 926 |  |  |  |
| 7. | 35,0 | 997 |  | 930 | 860 |  |  |
| 8. | 40,0 | 984 |  | 935 | 862 | 565+ |  |
| 9. | 45,0 | 962 |  | 932 | 860 | 507+ |  |
| 10. | 50,0 | 945 |  | 928 | 856 | 446+ |  |
| 11. | 55,0 | 975 |  | 935 | 860 | 505+ |  |
| 12. | 60,0 | 1015 |  | 934 | 860 | 505+ |  |
| 13. | 65,0 | 1045 |  | 937 | 860 | 455+ |  |
| 14. | 70,0 | 1068 |  | 935 | 862 | 465+ |  |
| 15. | 75,0 | 1090 |  | 937 | 864 | 452+ |  |
| 16. | 80,0 | 1110 |  | 938 | 864 | 450+ |  |
| 17. | 85,0 | 1126 |  | 932 | 864 | 788+ |  |
| 18. | 87,5 | 1140 |  |  | 867 |  |  |
| 19. | 90,0 | 1150 | 1116 |  | 864 |  |  |
| 20. | 92,5 | 1165 | 1150 |  | 864 |  | 908 |
| 21. | 95,0 | 1168 | 1158 |  | 882 |  | 925 |
| 22. | 96,3 | 1175 | 1170 |  | 906 |  | 930 |
| 23. | 97,5 | 1181 |  |  | 910 |  | 932 |
| 24. | 100 | 1182 |  |  |  |  | 953 |

+ - экзотермический эффект

Таблица S14.

Результаты исследования систем CdF2- ScF3 методом ДТА

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № | Моль.% ScF3 | T1ликв., оС | T2солид., оС | T3 эвт., оС |
| 1. | 1,0 | 1070 | 1070 |  |
| 2. | 2,5 | 1062 | 1062 |  |
| 3. | 5,0 | 1060 | 1051 |  |
| 4. | 7,5 | 1051 | 1033 |  |
| 5. | 10,0 | 1036 |  | 944 |
| 6. | 15,0 | 1013 |  | 945 |
| 7. | 20,0 | 980 |  | 940 |
| 8. | 22,5 | 942 |  | 942 |
| 9. | 25,0 | 970 |  | 940 |
| 10. | 30,0 | 1022 |  | 942 |
| 11. | 35,0 | - |  | 940 |
| 12. | 40,0 | 1156 |  | 941 |
| 13. | 50,0 | - |  | 942 |
| 14. | 60,0 | - |  | 940 |
| 15. | 70,0 | - |  | 939 |
| 16. | 80,0 | - |  | 939 |
| 17. | 85,0 | - |  | 943 |
| 18. | 90,0 | - | 955 | - |
| 19. | 95,0 | - | 1046 | - |
| 20. | 100 | 1552 |  |  |

Таблица S15.

Координаты нонвариантных точек в системах CdF2- RF3

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RF3 | Эвтектика | | Предельная растворимость RF3  в CdF2 | Поле бертоллидной фазы | | Распад твёрдого раствора  на основе α-RF3 | |
| C, мол.% | Т, оС | C, мол.% | Т1 | Т2 | C, мол.% | Т, оС |
| LaF3 | 17 | 1015 | 13 | — | — | — | — |
| CeF3 | 30 | 1027 | 21 | — | — | — | — |
| РгF3 | 33 | 1040 | 24 | — | — | — | — |
| NdF3 | 35 | 1045 | 27 | — | — | — | — |
| SmF3 | 40 | 1054 | 29 | — | — | — | — |
| GdF3 | 44 | 1036 | 33 | — | — | — | — |
| TbF3 | 48,5 | 1015 | 34 | 1154 | 810 | — | — |
| DyF3 | 48,5 | 993 | 34 | 1100 | 850 | — | — |
| HoF3 | 50 | 980 | 33 | 1062 | 880 | — | — |
| ErF3 | 52 | 960 | 32 | 1005 | 900 | 96,5 | 1090 |
| TmF3 | 54 | 922 | 31 | 940 | 900 | 92 | 994 |
| YbF3 | 56 | 903 | 31 | — | — | 75 | 913 |
| LuF3 | 52 | 932 | 28 | — | — | 89 | 860 |