Supporting Information

Exploring 2D Materials Thermodynamic Stability via Machine Learning

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The final trained XGBoost model uses 91 features in the order: Prototype, six statistical functions (Table 2) for each atomic property of Table 1 (Z, ϵ^{ho}, ϵ^{lu}, $\mathcal{I}$, $\mathcal{E}$, r_s, r_p, r, r_v, χ, α, $\mathcal{G}$, $\varnothing$, and v), and the six SISSO-generated features presented in the manuscript Table 3.

The final model trained parameters are:

```
XGBClassifier(base_score=0.5, booster='gbtree', colsample_bylevel=1,
       colsample_bynode=1, colsample_bytree=0.9953711885520399,
       gamma=1.1270781133713104, learning_rate=0.07826420347303574,
       max_delta_step=0, max_depth=14, min_child_weight=12.822470516010153,
       missing=None, n_estimators=139, n_jobs=1, nthread=None, nthreads=-1,
       objective='multi:softprob', random_state=0,
       reg_alpha=3.1895701050099325, reg_lambda=1, scale_pos_weight=1,
       seed=None, silent=None, subsample=0.9640606220893467, verbosity=1)
```

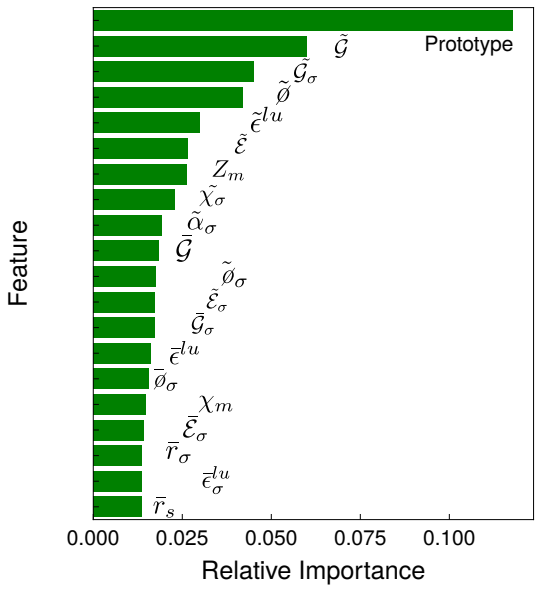

Figure S1: Feature importance for the classification model without the SISSO-generated features.

The next figures show the SISSO correlation scatter plots of formation energies comparing the DFT calculated values with the SISSO machine learning regression models for each 2D materials stability class.

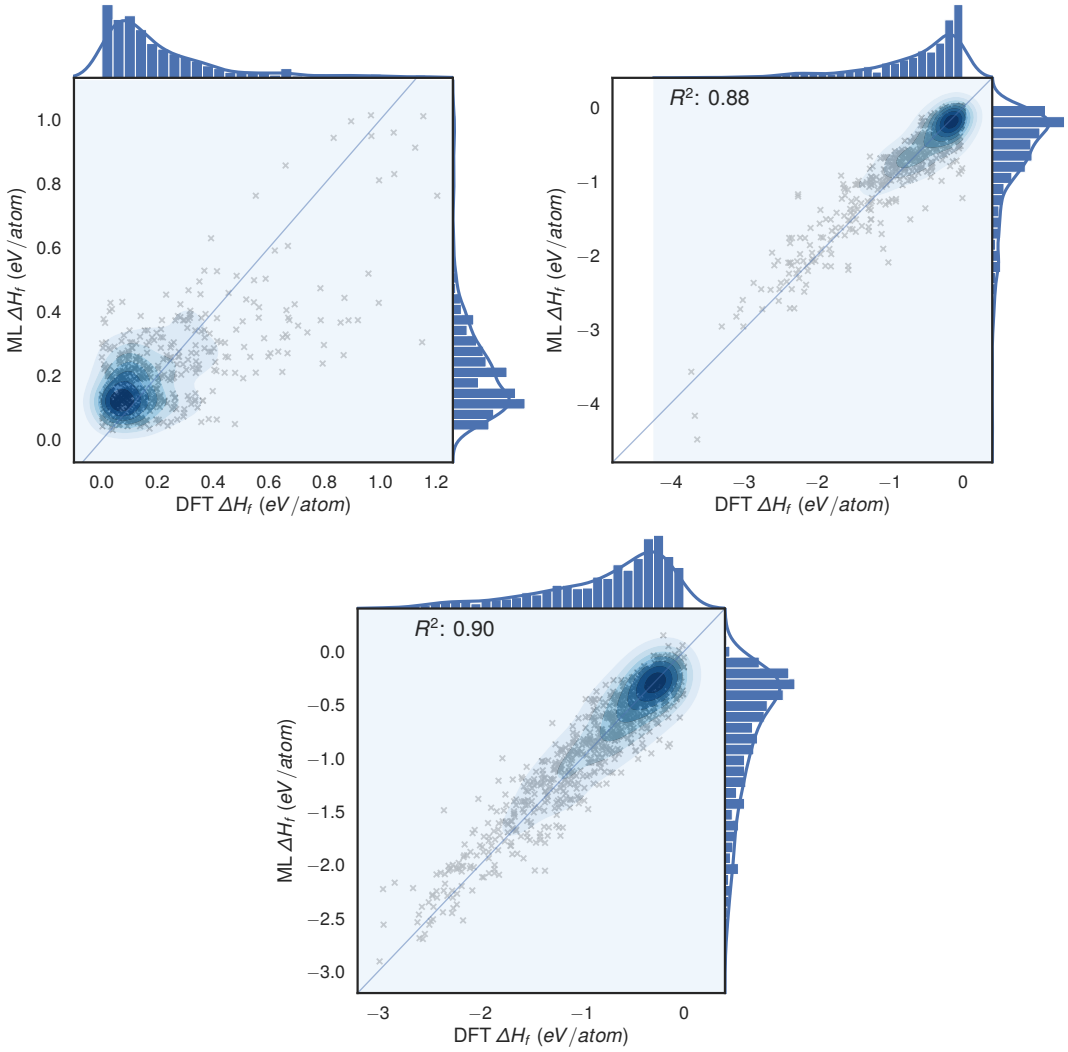

Figure S2: Correlation scatter plot of formation energies comparing the DFT calculated values with the regression model obtained via SISSO machine learning for the classes low, medium, and high stability.

Table S1: SISSO machine learning linear regression coefficients c for the three materials classes.

	c_1	c_2	c_3	c_4
Low	-2.5163	0.40869E-05	0.12500	0.019152
Medium	-0.51251	-0.026682	0.0035589	0.032611
High	-1.4566	-0.30172	0.18729	-0.18979

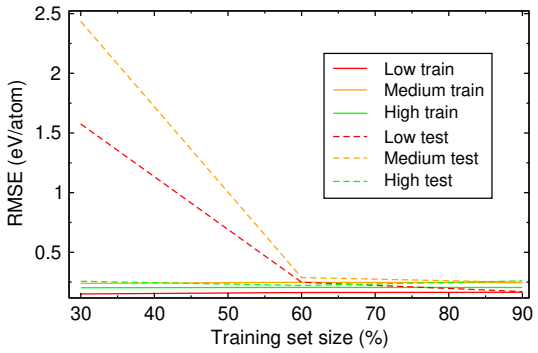

Figure S3: Learning curve of the regression models. Training error is obtained with 5-fold cross-validation.

Table S2: Screened materials for water splitting. The formula, prototype, space group, band gap, and band edges (valence band maximum and conduction band mininmum) are presented.

Formula	Prototype	Space group	Band gap (G_0W_0) (eV)	VBM (eV)	CBM (eV)	Direct gap
CrO2	MoS2	P-6m2	1.230	-7.823	-6.593	False
PtTe2	CdI2	P-3m1	1.242	-4.897	-3.655	False
FeI2	CdI2	P-3m1	1.256	-4.585	-3.329	False
CrSSe	MoSSe	P3m1	1.294	-5.793	-4.499	True
TiSSe	MoSSe	P3m1	1.333	-6.422	-5.089	False
PdBr2	CdI2	P-3m1	1.334	-6.104	-4.770	False
YBr2	MoS2	P-6m2	1.353	-4.481	-3.128	False
WTe2	MoS2	P-6m2	1.377	-4.769	-3.393	True
TiClI	MoSSe	P3m1	1.383	-3.936	-2.553	False
BiITe	BiTeI	P3m1	1.419	-6.443	-5.024	False
HfI2	MoS2	P-6m2	1.421	-3.621	-2.200	False
TiBr2	MoS2	P-6m2	1.421	-3.802	-2.380	False
ZrI2	MoS2	P-6m2	1.428	-3.708	-2.280	False
CrS2	MoS2	P-6m2	1.448	-6.167	-4.719	True
TiBrCl	MoSSe	P3m1	1.473	-4.088	-2.616	False
TiSe2	MoS2	P-6m2	1.481	-6.417	-4.936	False
MoTe2	MoS2	P-6m2	1.563	-4.719	-3.156	True
ZrBrI	MoSSe	P3m1	1.590	-3.884	-2.294	False
YCl2	MoS2	P-6m2	1.611	-4.715	-3.104	False
HfBrI	MoSSe	P3m1	1.612	-3.820	-2.209	False
PdSe2	CdI2	P-3m1	1.615	-6.000	-4.385	False
Pb2Se2	PbS	P1	1.623	-5.261	-3.639	False

TiCl2	MoS2	P-6m2	1.636	-4.250	-2.614	False
ISbTe	BiTeI	P3m1	1.676	-6.073	-4.396	False
BiBrTe	BiTeI	P3m1	1.690	-6.836	-5.145	False
ZrSe2	CdI2	P-3m1	1.691	-6.311	-4.620	False
FeCl2	CdI2	P-3m1	1.721	-5.232	-3.511	False
BiClTe	BiTeI	P3m1	1.736	-6.888	-5.151	True
ZrBr2	MoS2	P-6m2	1.737	-4.043	-2.306	False
ZrClI	MoSSe	P3m1	1.744	-4.073	-2.329	False
HfBr2	MoS2	P-6m2	1.759	-3.984	-2.225	False
BiISe	BiTeI	P3m1	1.772	-6.887	-5.115	False
HfClI	MoSSe	P3m1	1.783	-4.029	-2.246	False
HfSe2	CdI2	P-3m1	1.788	-6.325	-4.538	False
WSeTe	MoSSe	P3m1	1.800	-5.085	-3.285	True
NiS2	CdI2	P-3m1	1.868	-6.523	-4.655	False
ZrBrCl	MoSSe	P3m1	1.878	-4.232	-2.354	False
SnSe2	CdI2	P-3m1	1.912	-6.884	-4.972	False
HfBrCl	MoSSe	P3m1	1.926	-4.179	-2.253	False
RuI2	CdI2	P-3m1	1.988	-4.621	-2.633	True
ZrCl2	MoS2	P-6m2	1.993	-4.430	-2.438	False
ISbSe	BiTeI	P3m1	1.994	-6.431	-4.438	False
P4	P	Pma2	2.025	-5.956	-3.931	False
AsISe	BiTeI	P3m1	2.030	-6.311	-4.281	False
BiIS	BiTeI	P3m1	2.042	-7.188	-5.146	False
PbTe	GeSe	P3m1	2.059	-5.519	-3.460	True
WSTe	MoSSe	P3m1	2.065	-5.502	-3.437	False
BrSbTe	BiTeI	P3m1	2.070	-6.605	-4.535	False
HfCl2	MoS2	P-6m2	2.092	-4.373	-2.282	False

WSe2	MoS2	P-6m2	2.104	-5.316	-3.212	True
MoSe2	MoS2	P-6m2	2.119	-5.270	-3.151	True
BrSbSe	BiTeI	P3m1	2.164	-6.898	-4.734	False
BiClSe	BiTeI	P3m1	2.202	-7.580	-5.377	False
AsBrTe	BiTeI	P3m1	2.227	-6.582	-4.355	False
ScSe2	MoS2	P-6m2	2.229	-6.803	-4.574	False
ISSb	BiTeI	P3m1	2.260	-6.667	-4.407	False
GeS2	CdI2	P-3m1	2.266	-7.532	-5.266	False
AsBrSe	BiTeI	P3m1	2.274	-6.803	-4.529	False
WSSe	MoSSe	P3m1	2.314	-5.689	-3.375	True
MoO2	MoS2	P-6m2	2.317	-6.912	-4.596	False
MoSSe	MoSSe	P3m1	2.328	-5.620	-3.292	True
BiBrS	BiTeI	P3m1	2.335	-7.679	-5.344	False
NiO2	CdI2	P-3m1	2.346	-8.200	-5.853	False
AsIS	BiTeI	P3m1	2.356	-6.614	-4.258	False
PtSe2	CdI2	P-3m1	2.381	-6.245	-3.864	False
ClSbTe	BiTeI	P3m1	2.382	-6.930	-4.548	False
RuBr2	CdI2	P-3m1	2.403	-4.878	-2.475	False
PdCl2	CdI2	P-3m1	2.407	-7.041	-4.635	False
BrSSb	BiTeI	P3m1	2.419	-7.167	-4.748	False
PdS2	CdI2	P-3m1	2.441	-7.043	-4.602	False
AsBrS	BiTeI	P3m1	2.514	-7.058	-4.544	False
WS2	MoS2	P-6m2	2.532	-6.018	-3.486	True
MoS2	MoS2	P-6m2	2.533	-5.961	-3.428	True
AsClSe	BiTeI	P3m1	2.561	-7.192	-4.632	False
NiBr2	CdI2	P-3m1	2.616	-6.660	-4.044	False
GeTe	GeSe	P3m1	2.647	-5.812	-3.165	False

WO2	MoS2	P-6m2	2.706	-7.004	-4.297	False
ZrS2	CdI2	P-3m1	2.885	-7.501	-4.616	False
PdO2	CdI2	P-3m1	2.903	-7.987	-5.084	False
HfS2	CdI2	P-3m1	2.938	-7.505	-4.567	False
PtS2	CdI2	P-3m1	2.945	-6.969	-4.024	False
PbO2	CdI2	P-3m1	2.995	-9.240	-6.246	False
VBr2	CdI2	P-3m1	3.013	-4.855	-1.842	False
Al2Te2	GaS	P-6m2	3.016	-6.289	-3.273	False
In2S2	GaS	P-6m2	3.149	-7.530	-4.381	False
SnS2	CdI2	P-3m1	3.150	-7.942	-4.792	False
GeI2	CdI2	P-3m1	3.348	-6.846	-3.498	False
NiCl2	CdI2	P-3m1	3.424	-7.076	-3.652	False
Ga2Se2	GaS	P-6m2	3.445	-6.871	-3.426	False
VCl2	CdI2	P-3m1	3.456	-5.203	-1.747	False

Table S3: Thermodynamic stability prediction for compounds III-V-VI_4 and III-V-VI_2 in different structural prototypes.

Formula	Prototype	Prediction
BNO_4	MoS2	MEDIUM
BNS_4	MoS2	MEDIUM
$BNSe_4$	MoS2	LOW
$BNTe_4$	MoS2	MEDIUM
BPO_4	MoS2	MEDIUM
BPS_4	MoS2	LOW
$BPSe_4$	MoS2	LOW
$BPTe_4$	MoS2	LOW
$BAsO_4$	MoS2	MEDIUM
$BAsS_4$	MoS2	LOW
$BAsSe_4$	MoS2	LOW
$BAsTe_4$	MoS2	LOW
$BSbO_4$	MoS2	MEDIUM
$BSbS_4$	MoS2	HIGH
$BSbSe_4$	MoS2	LOW
$BSbTe_4$	MoS2	LOW
$BBiO_4$	MoS2	MEDIUM
$BBiS_4$	MoS2	LOW
$BBiSe_4$	MoS2	LOW
$BBiTe_4$	MoS2	LOW
$AlNO_4$	MoS2	MEDIUM
$AlNS_4$	MoS2	MEDIUM
$AlNSe_4$	MoS2	MEDIUM
$AlNTe_4$	MoS2	LOW

$AlPO_4$	MoS2	MEDIUM
$AlPS_4$	MoS2	HIGH
$AlPSe_4$	MoS2	HIGH
$AlPTe_4$	MoS2	HIGH
$AlAsO_4$	MoS2	MEDIUM
$AlAsS_4$	MoS2	HIGH
$AlAsSe_4$	MoS2	HIGH
$AlAsTe_4$	MoS2	LOW
$AlSbO_4$	MoS2	MEDIUM
$AlSbS_4$	MoS2	HIGH
$AlSbSe_4$	MoS2	HIGH
$AlSbTe_4$	MoS2	HIGH
$AlBiO_4$	MoS2	MEDIUM
$AlBiS_4$	MoS2	HIGH
$AlBiSe_4$	MoS2	HIGH
$AlBiTe_4$	MoS2	HIGH
$GaNO_4$	MoS2	MEDIUM
$GaNS_4$	MoS2	MEDIUM
$GaNSe_4$	MoS2	LOW
$GaNTe_4$	MoS2	LOW
$GaPO_4$	MoS2	MEDIUM
$GaPS_4$	MoS2	HIGH
$GaPSe_4$	MoS2	HIGH
$GaPTe_4$	MoS2	LOW
$GaAsO_4$	MoS2	MEDIUM
$GaAsS_4$	MoS2	HIGH
$GaAsSe_4$	MoS2	LOW

$GaAsTe_4$	MoS2	LOW
$GaSbO_4$	MoS2	MEDIUM
$GaSbS_4$	MoS2	HIGH
$GaSbSe_4$	MoS2	HIGH
$GaSbTe_4$	MoS2	LOW
$GaBiO_4$	MoS2	MEDIUM
$GaBiS_4$	MoS2	HIGH
$GaBiSe_4$	MoS2	HIGH
$GaBiTe_4$	MoS2	HIGH
$InNO_4$	MoS2	MEDIUM
$InNS_4$	MoS2	LOW
$InNSe_4$	MoS2	LOW
$InNTe_4$	MoS2	LOW
$InPO_4$	MoS2	MEDIUM
$InPS_4$	MoS2	HIGH
$InPSe_4$	MoS2	HIGH
$InPTe_4$	MoS2	HIGH
$InAsO_4$	MoS2	MEDIUM
$InAsS_4$	MoS2	HIGH
$InAsSe_4$	MoS2	HIGH
$InAsTe_4$	MoS2	LOW
$InSbO_4$	MoS2	MEDIUM
$InSbS_4$	MoS2	HIGH
$InSbSe_4$	MoS2	HIGH
$InSbTe_4$	MoS2	HIGH
$InBiO_4$	MoS2	MEDIUM
$InBiS_4$	MoS2	HIGH

$InBiSe_4$	MoS2	HIGH
$InBiTe_4$	MoS2	HIGH
$TlNO_4$	MoS2	MEDIUM
$TlNS_4$	MoS2	LOW
$TlNSe_4$	MoS2	LOW
$TlNTe_4$	MoS2	LOW
$TlPO_4$	MoS2	HIGH
$TlPS_4$	MoS2	HIGH
$TlPSe_4$	MoS2	HIGH
$TlPTe_4$	MoS2	HIGH
$TlAsO_4$	MoS2	HIGH
$TlAsS_4$	MoS2	HIGH
$TlAsSe_4$	MoS2	HIGH
$TlAsTe_4$	MoS2	LOW
$TlSbO_4$	MoS2	HIGH
$TlSbS_4$	MoS2	HIGH
$TlSbSe_4$	MoS2	HIGH
$TlSbTe_4$	MoS2	HIGH
$TlBiO_4$	MoS2	HIGH
$TlBiS_4$	MoS2	HIGH
$TlBiSe_4$	MoS2	HIGH
$TlBiTe_4$	MoS2	HIGH
BNO_4	CdI2	MEDIUM
BNS_4	CdI2	LOW
$BNSe_4$	CdI2	LOW
$BNTe_4$	CdI2	LOW
BPO_4	CdI2	MEDIUM

BPS_4	CdI2	LOW
$BPSe_4$	CdI2	LOW
$BPTe_4$	CdI2	LOW
$BAsO_4$	CdI2	MEDIUM
$BAsS_4$	CdI2	LOW
$BAsSe_4$	CdI2	LOW
$BAsTe_4$	CdI2	LOW
$BSbO_4$	CdI2	MEDIUM
$BSbS_4$	CdI2	HIGH
$BSbSe_4$	CdI2	LOW
$BSbTe_4$	CdI2	LOW
$BBiO_4$	CdI2	MEDIUM
$BBiS_4$	CdI2	LOW
$BBiSe_4$	CdI2	LOW
$BBiTe_4$	CdI2	LOW
$AlNO_4$	CdI2	MEDIUM
$AlNS_4$	CdI2	MEDIUM
$AlNSe_4$	CdI2	MEDIUM
$AlNTe_4$	CdI2	LOW
$AlPO_4$	CdI2	HIGH
$AlPS_4$	CdI2	HIGH
$AlPSe_4$	CdI2	HIGH
$AlPTe_4$	CdI2	HIGH
$AlAsO_4$	CdI2	HIGH
$AlAsS_4$	CdI2	HIGH
$AlAsSe_4$	CdI2	HIGH
$AlAsTe_4$	CdI2	HIGH

$AlSbO_4$	CdI2	HIGH
$AlSbS_4$	CdI2	HIGH
$AlSbSe_4$	CdI2	HIGH
$AlSbTe_4$	CdI2	HIGH
$AlBiO_4$	CdI2	HIGH
$AlBiS_4$	CdI2	HIGH
$AlBiSe_4$	CdI2	HIGH
$AlBiTe_4$	CdI2	HIGH
$GaNO_4$	CdI2	HIGH
$GaNS_4$	CdI2	MEDIUM
$GaNSe_4$	CdI2	LOW
$GaNTe_4$	CdI2	LOW
$GaPO_4$	CdI2	HIGH
$GaPS_4$	CdI2	HIGH
$GaPSe_4$	CdI2	HIGH
$GaPTe_4$	CdI2	HIGH
$GaAsO_4$	CdI2	HIGH
$GaAsS_4$	CdI2	HIGH
$GaAsSe_4$	CdI2	HIGH
$GaAsTe_4$	CdI2	HIGH
$GaSbO_4$	CdI2	HIGH
$GaSbS_4$	CdI2	HIGH
$GaSbSe_4$	CdI2	HIGH
$GaSbTe_4$	CdI2	HIGH
$GaBiO_4$	CdI2	HIGH
$GaBiS_4$	CdI2	HIGH
$GaBiSe_4$	CdI2	HIGH

$GaBiTe_4$	CdI2	HIGH
$InNO_4$	CdI2	HIGH
$InNS_4$	CdI2	LOW
$InNSe_4$	CdI2	LOW
$InNTe_4$	CdI2	LOW
$InPO_4$	CdI2	HIGH
$InPS_4$	CdI2	HIGH
$InPSe_4$	CdI2	HIGH
$InPTe_4$	CdI2	HIGH
$InAsO_4$	CdI2	HIGH
$InAsS_4$	CdI2	HIGH
$InAsSe_4$	CdI2	HIGH
$InAsTe_4$	CdI2	HIGH
$InSbO_4$	CdI2	HIGH
$InSbS_4$	CdI2	HIGH
$InSbSe_4$	CdI2	HIGH
$InSbTe_4$	CdI2	HIGH
$InBiO_4$	CdI2	HIGH
$InBiS_4$	CdI2	HIGH
$InBiSe_4$	CdI2	HIGH
$InBiTe_4$	CdI2	HIGH
$TlNO_4$	CdI2	HIGH
$TlNS_4$	CdI2	LOW
$TlNSe_4$	CdI2	LOW
$TlNTe_4$	CdI2	LOW
$TlPO_4$	CdI2	HIGH
$TlPS_4$	CdI2	HIGH

$TlPSe_4$	CdI2	HIGH
$TlPTe_4$	CdI2	HIGH
$TlAsO_4$	CdI2	HIGH
$TlAsS_4$	CdI2	HIGH
$TlAsSe_4$	CdI2	HIGH
$TlAsTe_4$	CdI2	HIGH
$TlSbO_4$	CdI2	HIGH
$TlSbS_4$	CdI2	HIGH
$TlSbSe_4$	CdI2	HIGH
$TlSbTe_4$	CdI2	HIGH
$TlBiO_4$	CdI2	HIGH
$TlBiS_4$	CdI2	HIGH
$TlBiSe_4$	CdI2	HIGH
$TlBiTe_4$	CdI2	HIGH
BNO_4	PdS2	MEDIUM
BNS_4	PdS2	LOW
$BNSe_4$	PdS2	LOW
$BNTe_4$	PdS2	MEDIUM
BPO_4	PdS2	MEDIUM
BPS_4	PdS2	LOW
$BPSe_4$	PdS2	LOW
$BPTe_4$	PdS2	LOW
$BAsO_4$	PdS2	MEDIUM
$BAsS_4$	PdS2	LOW
$BAsSe_4$	PdS2	LOW
$BAsTe_4$	PdS2	LOW
$BSbO_4$	PdS2	MEDIUM

$BSbS_4$	PdS2	HIGH
$BSbSe_4$	PdS2	LOW
$BSbTe_4$	PdS2	LOW
$BBiO_4$	PdS2	MEDIUM
$BBiS_4$	PdS2	HIGH
$BBiSe_4$	PdS2	LOW
$BBiTe_4$	PdS2	LOW
$AlNO_4$	PdS2	MEDIUM
$AlNS_4$	PdS2	MEDIUM
$AlNSe_4$	PdS2	MEDIUM
$AlNTe_4$	PdS2	LOW
$AlPO_4$	PdS2	HIGH
$AlPS_4$	PdS2	HIGH
$AlPSe_4$	PdS2	HIGH
$AlPTe_4$	PdS2	HIGH
$AlAsO_4$	PdS2	HIGH
$AlAsS_4$	PdS2	HIGH
$AlAsSe_4$	PdS2	HIGH
$AlAsTe_4$	PdS2	HIGH
$AlSbO_4$	PdS2	HIGH
$AlSbS_4$	PdS2	HIGH
$AlSbSe_4$	PdS2	HIGH
$AlSbTe_4$	PdS2	HIGH
$AlBiO_4$	PdS2	HIGH
$AlBiS_4$	PdS2	HIGH
$AlBiSe_4$	PdS2	HIGH
$AlBiTe_4$	PdS2	HIGH

$GaNO_4$	PdS2	HIGH
$GaNS_4$	PdS2	MEDIUM
$GaNSe_4$	PdS2	LOW
$GaNTe_4$	PdS2	LOW
$GaPO_4$	PdS2	HIGH
$GaPS_4$	PdS2	HIGH
$GaPSe_4$	PdS2	HIGH
$GaPTe_4$	PdS2	HIGH
$GaAsO_4$	PdS2	HIGH
$GaAsS_4$	PdS2	HIGH
$GaAsSe_4$	PdS2	HIGH
$GaAsTe_4$	PdS2	LOW
$GaSbO_4$	PdS2	MEDIUM
$GaSbS_4$	PdS2	HIGH
$GaSbSe_4$	PdS2	HIGH
$GaSbTe_4$	PdS2	LOW
$GaBiO_4$	PdS2	HIGH
$GaBiS_4$	PdS2	HIGH
$GaBiSe_4$	PdS2	HIGH
$GaBiTe_4$	PdS2	HIGH
$InNO_4$	PdS2	MEDIUM
$InNS_4$	PdS2	LOW
$InNSe_4$	PdS2	LOW
$InNTe_4$	PdS2	LOW
$InPO_4$	PdS2	HIGH
$InPS_4$	PdS2	HIGH
$InPSe_4$	PdS2	HIGH

$InPTe_4$	PdS2	HIGH
$InAsO_4$	PdS2	HIGH
$InAsS_4$	PdS2	HIGH
$InAsSe_4$	PdS2	HIGH
$InAsTe_4$	PdS2	HIGH
$InSbO_4$	PdS2	HIGH
$InSbS_4$	PdS2	HIGH
$InSbSe_4$	PdS2	HIGH
$InSbTe_4$	PdS2	HIGH
$InBiO_4$	PdS2	HIGH
$InBiS_4$	PdS2	HIGH
$InBiSe_4$	PdS2	HIGH
$InBiTe_4$	PdS2	HIGH
$TlNO_4$	PdS2	HIGH
$TlNS_4$	PdS2	LOW
$TlNSe_4$	PdS2	LOW
$TlNTe_4$	PdS2	LOW
$TlPO_4$	PdS2	HIGH
$TlPS_4$	PdS2	HIGH
$TlPSe_4$	PdS2	HIGH
$TlPTe_4$	PdS2	HIGH
$TlAsO_4$	PdS2	HIGH
$TlAsS_4$	PdS2	HIGH
$TlAsSe_4$	PdS2	HIGH
$TlAsTe_4$	PdS2	HIGH
$TlSbO_4$	PdS2	HIGH
$TlSbS_4$	PdS2	HIGH

$TlSbSe_4$	PdS2	HIGH
$TlSbTe_4$	PdS2	HIGH
$TlBiO_4$	PdS2	HIGH
$TlBiS_4$	PdS2	HIGH
$TlBiSe_4$	PdS2	HIGH
$TlBiTe_4$	PdS2	HIGH
BNO_4	ReS2	MEDIUM
BNS_4	ReS2	LOW
$BNSe_4$	ReS2	LOW
$BNTe_4$	ReS2	MEDIUM
BPO_4	ReS2	MEDIUM
BPS_4	ReS2	LOW
$BPSe_4$	ReS2	LOW
$BPTe_4$	ReS2	LOW
$BAsO_4$	ReS2	MEDIUM
$BAsS_4$	ReS2	LOW
$BAsSe_4$	ReS2	LOW
$BAsTe_4$	ReS2	LOW
$BSbO_4$	ReS2	MEDIUM
$BSbS_4$	ReS2	HIGH
$BSbSe_4$	ReS2	LOW
$BSbTe_4$	ReS2	LOW
$BBiO_4$	ReS2	MEDIUM
$BBiS_4$	ReS2	HIGH
$BBiSe_4$	ReS2	LOW
$BBiTe_4$	ReS2	LOW
$AlNO_4$	ReS2	MEDIUM

$AlNS_4$	ReS2	MEDIUM
$AlNSe_4$	ReS2	MEDIUM
$AlNTe_4$	ReS2	LOW
$AlPO_4$	ReS2	HIGH
$AlPS_4$	ReS2	HIGH
$AlPSe_4$	ReS2	HIGH
$AlPTe_4$	ReS2	HIGH
$AlAsO_4$	ReS2	HIGH
$AlAsS_4$	ReS2	HIGH
$AlAsSe_4$	ReS2	HIGH
$AlAsTe_4$	ReS2	HIGH
$AlSbO_4$	ReS2	HIGH
$AlSbS_4$	ReS2	HIGH
$AlSbSe_4$	ReS2	HIGH
$AlSbTe_4$	ReS2	HIGH
$AlBiO_4$	ReS2	HIGH
$AlBiS_4$	ReS2	HIGH
$AlBiSe_4$	ReS2	HIGH
$AlBiTe_4$	ReS2	HIGH
$GaNO_4$	ReS2	HIGH
$GaNS_4$	ReS2	MEDIUM
$GaNSe_4$	ReS2	LOW
$GaNTe_4$	ReS2	LOW
$GaPO_4$	ReS2	HIGH
$GaPS_4$	ReS2	HIGH
$GaPSe_4$	ReS2	HIGH
$GaPTe_4$	ReS2	HIGH

$GaAsO_4$	ReS2	HIGH
$GaAsS_4$	ReS2	HIGH
$GaAsSe_4$	ReS2	HIGH
$GaAsTe_4$	ReS2	HIGH
$GaSbO_4$	ReS2	HIGH
$GaSbS_4$	ReS2	HIGH
$GaSbSe_4$	ReS2	HIGH
$GaSbTe_4$	ReS2	HIGH
$GaBiO_4$	ReS2	HIGH
$GaBiS_4$	ReS2	HIGH
$GaBiSe_4$	ReS2	HIGH
$GaBiTe_4$	ReS2	HIGH
$InNO_4$	ReS2	HIGH
$InNS_4$	ReS2	LOW
$InNSe_4$	ReS2	LOW
$InNTe_4$	ReS2	LOW
$InPO_4$	ReS2	HIGH
$InPS_4$	ReS2	HIGH
$InPSe_4$	ReS2	HIGH
$InPTe_4$	ReS2	HIGH
$InAsO_4$	ReS2	HIGH
$InAsS_4$	ReS2	HIGH
$InAsSe_4$	ReS2	HIGH
$InAsTe_4$	ReS2	HIGH
$InSbO_4$	ReS2	HIGH
$InSbS_4$	ReS2	HIGH
$InSbSe_4$	ReS2	HIGH

$InSbTe_4$	ReS2	HIGH
$InBiO_4$	ReS2	HIGH
$InBiS_4$	ReS2	HIGH
$InBiSe_4$	ReS2	HIGH
$InBiTe_4$	ReS2	HIGH
$TlNO_4$	ReS2	HIGH
$TlNS_4$	ReS2	LOW
$TlNSe_4$	ReS2	LOW
$TlNTe_4$	ReS2	LOW
$TlPO_4$	ReS2	HIGH
$TlPS_4$	ReS2	HIGH
$TlPSe_4$	ReS2	HIGH
$TlPTe_4$	ReS2	HIGH
$TlAsO_4$	ReS2	HIGH
$TlAsS_4$	ReS2	HIGH
$TlAsSe_4$	ReS2	HIGH
$TlAsTe_4$	ReS2	HIGH
$TlSbO_4$	ReS2	HIGH
$TlSbS_4$	ReS2	HIGH
$TlSbSe_4$	ReS2	HIGH
$TlSbTe_4$	ReS2	HIGH
$TlBiO_4$	ReS2	HIGH
$TlBiS_4$	ReS2	HIGH
$TlBiSe_4$	ReS2	HIGH
$TlBiTe_4$	ReS2	HIGH
BNO_2	RhO	LOW
BNS_2	RhO	LOW

$BNSe_2$	RhO	LOW
$BNTe_2$	RhO	MEDIUM
BPO_2	RhO	MEDIUM
BPS_2	RhO	LOW
$BPSe_2$	RhO	LOW
$BPTe_2$	RhO	LOW
$BAsO_2$	RhO	MEDIUM
$BAsS_2$	RhO	LOW
$BAsSe_2$	RhO	LOW
$BAsTe_2$	RhO	LOW
$BSbO_2$	RhO	MEDIUM
$BSbS_2$	RhO	LOW
$BSbSe_2$	RhO	LOW
$BSbTe_2$	RhO	LOW
$BBiO_2$	RhO	MEDIUM
$BBiS_2$	RhO	LOW
$BBiSe_2$	RhO	LOW
$BBiTe_2$	RhO	LOW
$AlNO_2$	RhO	MEDIUM
$AlNS_2$	RhO	MEDIUM
$AlNSe_2$	RhO	MEDIUM
$AlNTe_2$	RhO	LOW
$AlPO_2$	RhO	MEDIUM
$AlPS_2$	RhO	HIGH
$AlPSe_2$	RhO	HIGH
$AlPTe_2$	RhO	HIGH
$AlAsO_2$	RhO	MEDIUM

$AlAsS_2$	RhO	HIGH
$AlAsSe_2$	RhO	HIGH
$AlAsTe_2$	RhO	LOW
$AlSbO_2$	RhO	MEDIUM
$AlSbS_2$	RhO	HIGH
$AlSbSe_2$	RhO	HIGH
$AlSbTe_2$	RhO	LOW
$AlBiO_2$	RhO	MEDIUM
$AlBiS_2$	RhO	HIGH
$AlBiSe_2$	RhO	HIGH
$AlBiTe_2$	RhO	HIGH
$GaNO_2$	RhO	MEDIUM
$GaNS_2$	RhO	MEDIUM
$GaNSe_2$	RhO	LOW
$GaNTe_2$	RhO	LOW
$GaPO_2$	RhO	MEDIUM
$GaPS_2$	RhO	HIGH
$GaPSe_2$	RhO	HIGH
$GaPTe_2$	RhO	LOW
$GaAsO_2$	RhO	MEDIUM
$GaAsS_2$	RhO	MEDIUM
$GaAsSe_2$	RhO	LOW
$GaAsTe_2$	RhO	LOW
$GaSbO_2$	RhO	MEDIUM
$GaSbS_2$	RhO	MEDIUM
$GaSbSe_2$	RhO	LOW
$GaSbTe_2$	RhO	LOW

$GaBiO_2$	RhO	MEDIUM
$GaBiS_2$	RhO	MEDIUM
$GaBiSe_2$	RhO	MEDIUM
$GaBiTe_2$	RhO	LOW
$InNO_2$	RhO	MEDIUM
$InNS_2$	RhO	LOW
$InNSe_2$	RhO	LOW
$InNTe_2$	RhO	LOW
$InPO_2$	RhO	MEDIUM
$InPS_2$	RhO	MEDIUM
$InPSe_2$	RhO	HIGH
$InPTe_2$	RhO	LOW
$InAsO_2$	RhO	MEDIUM
$InAsS_2$	RhO	MEDIUM
$InAsSe_2$	RhO	MEDIUM
$InAsTe_2$	RhO	LOW
$InSbO_2$	RhO	MEDIUM
$InSbS_2$	RhO	MEDIUM
$InSbSe_2$	RhO	MEDIUM
$InSbTe_2$	RhO	LOW
$InBiO_2$	RhO	MEDIUM
$InBiS_2$	RhO	MEDIUM
$InBiSe_2$	RhO	HIGH
$InBiTe_2$	RhO	LOW
$TlNO_2$	RhO	MEDIUM
$TlNS_2$	RhO	LOW
$TlNSe_2$	RhO	LOW

$TlNTe_2$	RhO	LOW
$TlPO_2$	RhO	MEDIUM
$TlPS_2$	RhO	HIGH
$TlPSe_2$	RhO	HIGH
$TlPTe_2$	RhO	LOW
$TlAsO_2$	RhO	MEDIUM
$TlAsS_2$	RhO	HIGH
$TlAsSe_2$	RhO	HIGH
$TlAsTe_2$	RhO	LOW
$TlSbO_2$	RhO	MEDIUM
$TlSbS_2$	RhO	HIGH
$TlSbSe_2$	RhO	HIGH
$TlSbTe_2$	RhO	LOW
$TlBiO_2$	RhO	MEDIUM
$TlBiS_2$	RhO	HIGH
$TlBiSe_2$	RhO	HIGH
$TlBiTe_2$	RhO	HIGH
BNO_2	PbSe	MEDIUM
BNS_2	PbSe	LOW
$BNSe_2$	PbSe	LOW
$BNTe_2$	PbSe	MEDIUM
BPO_2	PbSe	MEDIUM
BPS_2	PbSe	LOW
$BPSe_2$	PbSe	LOW
$BPTe_2$	PbSe	LOW
$BAsO_2$	PbSe	MEDIUM
$BAsS_2$	PbSe	LOW

$BAsSe_2$	PbSe	LOW
$BAsTe_2$	PbSe	LOW
$BSbO_2$	PbSe	MEDIUM
$BSbS_2$	PbSe	LOW
$BSbSe_2$	PbSe	LOW
$BSbTe_2$	PbSe	LOW
$BBiO_2$	PbSe	MEDIUM
$BBiS_2$	PbSe	LOW
$BBiSe_2$	PbSe	LOW
$BBiTe_2$	PbSe	LOW
$AlNO_2$	PbSe	MEDIUM
$AlNS_2$	PbSe	MEDIUM
$AlNSe_2$	PbSe	MEDIUM
$AlNTe_2$	PbSe	LOW
$AlPO_2$	PbSe	MEDIUM
$AlPS_2$	PbSe	HIGH
$AlPSe_2$	PbSe	HIGH
$AlPTe_2$	PbSe	HIGH
$AlAsO_2$	PbSe	MEDIUM
$AlAsS_2$	PbSe	HIGH
$AlAsSe_2$	PbSe	HIGH
$AlAsTe_2$	PbSe	LOW
$AlSbO_2$	PbSe	MEDIUM
$AlSbS_2$	PbSe	HIGH
$AlSbSe_2$	PbSe	HIGH
$AlSbTe_2$	PbSe	LOW
$AlBiO_2$	PbSe	MEDIUM

$AlBiS_2$	PbSe	HIGH
$AlBiSe_2$	PbSe	HIGH
$AlBiTe_2$	PbSe	LOW
$GaNO_2$	PbSe	MEDIUM
$GaNS_2$	PbSe	MEDIUM
$GaNSe_2$	PbSe	LOW
$GaNTe_2$	PbSe	LOW
$GaPO_2$	PbSe	MEDIUM
$GaPS_2$	PbSe	HIGH
$GaPSe_2$	PbSe	HIGH
$GaPTe_2$	PbSe	HIGH
$GaAsO_2$	PbSe	MEDIUM
$GaAsS_2$	PbSe	HIGH
$GaAsSe_2$	PbSe	LOW
$GaAsTe_2$	PbSe	LOW
$GaSbO_2$	PbSe	MEDIUM
$GaSbS_2$	PbSe	MEDIUM
$GaSbSe_2$	PbSe	LOW
$GaSbTe_2$	PbSe	LOW
$GaBiO_2$	PbSe	MEDIUM
$GaBiS_2$	PbSe	MEDIUM
$GaBiSe_2$	PbSe	MEDIUM
$GaBiTe_2$	PbSe	LOW
$InNO_2$	PbSe	MEDIUM
$InNS_2$	PbSe	LOW
$InNSe_2$	PbSe	LOW
$InNTe_2$	PbSe	LOW

$InPO_2$	PbSe	MEDIUM
$InPS_2$	PbSe	HIGH
$InPSe_2$	PbSe	HIGH
$InPTe_2$	PbSe	LOW
$InAsO_2$	PbSe	MEDIUM
$InAsS_2$	PbSe	MEDIUM
$InAsSe_2$	PbSe	MEDIUM
$InAsTe_2$	PbSe	LOW
$InSbO_2$	PbSe	MEDIUM
$InSbS_2$	PbSe	MEDIUM
$InSbSe_2$	PbSe	MEDIUM
$InSbTe_2$	PbSe	LOW
$InBiO_2$	PbSe	MEDIUM
$InBiS_2$	PbSe	MEDIUM
$InBiSe_2$	PbSe	MEDIUM
$InBiTe_2$	PbSe	LOW
$TlNO_2$	PbSe	MEDIUM
$TlNS_2$	PbSe	LOW
$TlNSe_2$	PbSe	LOW
$TlNTe_2$	PbSe	LOW
$TlPO_2$	PbSe	MEDIUM
$TlPS_2$	PbSe	HIGH
$TlPSe_2$	PbSe	HIGH
$TlPTe_2$	PbSe	LOW
$TlAsO_2$	PbSe	MEDIUM
$TlAsS_2$	PbSe	HIGH
$TlAsSe_2$	PbSe	HIGH

$TlAsTe_2$	PbSe	LOW
$TlSbO_2$	PbSe	MEDIUM
$TlSbS_2$	PbSe	HIGH
$TlSbSe_2$	PbSe	HIGH
$TlSbTe_2$	PbSe	LOW
$TlBiO_2$	PbSe	MEDIUM
$TlBiS_2$	PbSe	HIGH
$TlBiSe_2$	PbSe	HIGH
$TlBiTe_2$	PbSe	LOW
BNO_2	GaSe	MEDIUM
BNS_2	GaSe	LOW
$BNSe_2$	GaSe	LOW
$BNTe_2$	GaSe	MEDIUM
BPO_2	GaSe	MEDIUM
BPS_2	GaSe	LOW
$BPSe_2$	GaSe	LOW
$BPTe_2$	GaSe	LOW
$BAsO_2$	GaSe	MEDIUM
$BAsS_2$	GaSe	LOW
$BAsSe_2$	GaSe	LOW
$BAsTe_2$	GaSe	LOW
$BSbO_2$	GaSe	MEDIUM
$BSbS_2$	GaSe	LOW
$BSbSe_2$	GaSe	LOW
$BSbTe_2$	GaSe	LOW
$BBiO_2$	GaSe	MEDIUM
$BBiS_2$	GaSe	LOW

$BBiSe_2$	GaSe	LOW
$BBiTe_2$	GaSe	LOW
$AlNO_2$	GaSe	MEDIUM
$AlNS_2$	GaSe	MEDIUM
$AlNSe_2$	GaSe	MEDIUM
$AlNTe_2$	GaSe	LOW
$AlPO_2$	GaSe	MEDIUM
$AlPS_2$	GaSe	HIGH
$AlPSe_2$	GaSe	HIGH
$AlPTe_2$	GaSe	HIGH
$AlAsO_2$	GaSe	MEDIUM
$AlAsS_2$	GaSe	HIGH
$AlAsSe_2$	GaSe	HIGH
$AlAsTe_2$	GaSe	HIGH
$AlSbO_2$	GaSe	MEDIUM
$AlSbS_2$	GaSe	HIGH
$AlSbSe_2$	GaSe	HIGH
$AlSbTe_2$	GaSe	HIGH
$AlBiO_2$	GaSe	MEDIUM
$AlBiS_2$	GaSe	HIGH
$AlBiSe_2$	GaSe	HIGH
$AlBiTe_2$	GaSe	HIGH
$GaNO_2$	GaSe	MEDIUM
$GaNS_2$	GaSe	MEDIUM
$GaNSe_2$	GaSe	LOW
$GaNTe_2$	GaSe	LOW
$GaPO_2$	GaSe	HIGH

$GaPS_2$	GaSe	HIGH
$GaPSe_2$	GaSe	HIGH
$GaPTe_2$	GaSe	HIGH
$GaAsO_2$	GaSe	MEDIUM
$GaAsS_2$	GaSe	HIGH
$GaAsSe_2$	GaSe	HIGH
$GaAsTe_2$	GaSe	HIGH
$GaSbO_2$	GaSe	MEDIUM
$GaSbS_2$	GaSe	HIGH
$GaSbSe_2$	GaSe	HIGH
$GaSbTe_2$	GaSe	HIGH
$GaBiO_2$	GaSe	MEDIUM
$GaBiS_2$	GaSe	HIGH
$GaBiSe_2$	GaSe	HIGH
$GaBiTe_2$	GaSe	HIGH
$InNO_2$	GaSe	MEDIUM
$InNS_2$	GaSe	LOW
$InNSe_2$	GaSe	LOW
$InNTe_2$	GaSe	LOW
$InPO_2$	GaSe	MEDIUM
$InPS_2$	GaSe	HIGH
$InPSe_2$	GaSe	HIGH
$InPTe_2$	GaSe	HIGH
$InAsO_2$	GaSe	MEDIUM
$InAsS_2$	GaSe	HIGH
$InAsSe_2$	GaSe	HIGH
$InAsTe_2$	GaSe	HIGH

$InSbO_2$	GaSe	MEDIUM
$InSbS_2$	GaSe	HIGH
$InSbSe_2$	GaSe	HIGH
$InSbTe_2$	GaSe	HIGH
$InBiO_2$	GaSe	MEDIUM
$InBiS_2$	GaSe	HIGH
$InBiSe_2$	GaSe	HIGH
$InBiTe_2$	GaSe	HIGH
$TlNO_2$	GaSe	MEDIUM
$TlNS_2$	GaSe	LOW
$TlNSe_2$	GaSe	LOW
$TlNTe_2$	GaSe	LOW
$TlPO_2$	GaSe	HIGH
$TlPS_2$	GaSe	HIGH
$TlPSe_2$	GaSe	HIGH
$TlPTe_2$	GaSe	HIGH
$TlAsO_2$	GaSe	HIGH
$TlAsS_2$	GaSe	HIGH
$TlAsSe_2$	GaSe	HIGH
$TlAsTe_2$	GaSe	HIGH
$TlSbO_2$	GaSe	HIGH
$TlSbS_2$	GaSe	HIGH
$TlSbSe_2$	GaSe	HIGH
$TlSbTe_2$	GaSe	HIGH
$TlBiO_2$	GaSe	HIGH
$TlBiS_2$	GaSe	HIGH
$TlBiSe_2$	GaSe	HIGH

$TlBiTe_2$	GaSe	HIGH
BNO_2	AuSe	MEDIUM
BNS_2	AuSe	LOW
$BNSe_2$	AuSe	LOW
$BNTe_2$	AuSe	MEDIUM
BPO_2	AuSe	MEDIUM
BPS_2	AuSe	LOW
$BPSe_2$	AuSe	LOW
$BPTe_2$	AuSe	LOW
$BAsO_2$	AuSe	MEDIUM
$BAsS_2$	AuSe	LOW
$BAsSe_2$	AuSe	LOW
$BAsTe_2$	AuSe	LOW
$BSbO_2$	AuSe	MEDIUM
$BSbS_2$	AuSe	LOW
$BSbSe_2$	AuSe	LOW
$BSbTe_2$	AuSe	LOW
$BBiO_2$	AuSe	MEDIUM
$BBiS_2$	AuSe	LOW
$BBiSe_2$	AuSe	LOW
$BBiTe_2$	AuSe	LOW
$AlNO_2$	AuSe	MEDIUM
$AlNS_2$	AuSe	MEDIUM
$AlNSe_2$	AuSe	MEDIUM
$AlNTe_2$	AuSe	LOW
$AlPO_2$	AuSe	MEDIUM
$AlPS_2$	AuSe	HIGH

$AlPSe_2$	AuSe	HIGH
$AlPTe_2$	AuSe	HIGH
$AlAsO_2$	AuSe	MEDIUM
$AlAsS_2$	AuSe	HIGH
$AlAsSe_2$	AuSe	HIGH
$AlAsTe_2$	AuSe	HIGH
$AlSbO_2$	AuSe	MEDIUM
$AlSbS_2$	AuSe	HIGH
$AlSbSe_2$	AuSe	HIGH
$AlSbTe_2$	AuSe	HIGH
$AlBiO_2$	AuSe	MEDIUM
$AlBiS_2$	AuSe	HIGH
$AlBiSe_2$	AuSe	HIGH
$AlBiTe_2$	AuSe	HIGH
$GaNO_2$	AuSe	MEDIUM
$GaNS_2$	AuSe	MEDIUM
$GaNSe_2$	AuSe	MEDIUM
$GaNTe_2$	AuSe	LOW
$GaPO_2$	AuSe	MEDIUM
$GaPS_2$	AuSe	HIGH
$GaPSe_2$	AuSe	HIGH
$GaPTe_2$	AuSe	HIGH
$GaAsO_2$	AuSe	MEDIUM
$GaAsS_2$	AuSe	HIGH
$GaAsSe_2$	AuSe	HIGH
$GaAsTe_2$	AuSe	LOW
$GaSbO_2$	AuSe	MEDIUM

$GaSbS_2$	AuSe	HIGH
$GaSbSe_2$	AuSe	MEDIUM
$GaSbTe_2$	AuSe	LOW
$GaBiO_2$	AuSe	MEDIUM
$GaBiS_2$	AuSe	HIGH
$GaBiSe_2$	AuSe	HIGH
$GaBiTe_2$	AuSe	HIGH
$InNO_2$	AuSe	MEDIUM
$InNS_2$	AuSe	LOW
$InNSe_2$	AuSe	LOW
$InNTe_2$	AuSe	LOW
$InPO_2$	AuSe	MEDIUM
$InPS_2$	AuSe	HIGH
$InPSe_2$	AuSe	HIGH
$InPTe_2$	AuSe	HIGH
$InAsO_2$	AuSe	MEDIUM
$InAsS_2$	AuSe	HIGH
$InAsSe_2$	AuSe	MEDIUM
$InAsTe_2$	AuSe	LOW
$InSbO_2$	AuSe	MEDIUM
$InSbS_2$	AuSe	MEDIUM
$InSbSe_2$	AuSe	MEDIUM
$InSbTe_2$	AuSe	HIGH
$InBiO_2$	AuSe	MEDIUM
$InBiS_2$	AuSe	HIGH
$InBiSe_2$	AuSe	HIGH
$InBiTe_2$	AuSe	HIGH

$TlNO_2$	AuSe	MEDIUM
$TlNS_2$	AuSe	LOW
$TlNSe_2$	AuSe	LOW
$TlNTe_2$	AuSe	LOW
$TlPO_2$	AuSe	MEDIUM
$TlPS_2$	AuSe	HIGH
$TlPSe_2$	AuSe	HIGH
$TlPTe_2$	AuSe	HIGH
$TlAsO_2$	AuSe	MEDIUM
$TlAsS_2$	AuSe	HIGH
$TlAsSe_2$	AuSe	HIGH
$TlAsTe_2$	AuSe	HIGH
$TlSbO_2$	AuSe	MEDIUM
$TlSbS_2$	AuSe	HIGH
$TlSbSe_2$	AuSe	HIGH
$TlSbTe_2$	AuSe	HIGH
$TlBiO_2$	AuSe	MEDIUM
$TlBiS_2$	AuSe	HIGH
$TlBiSe_2$	AuSe	HIGH
$TlBiTe_2$	AuSe	HIGH
BNO_2	NiSe	MEDIUM
BNS_2	NiSe	LOW
$BNSe_2$	NiSe	LOW
$BNTe_2$	NiSe	MEDIUM
BPO_2	NiSe	MEDIUM
BPS_2	NiSe	LOW
$BPSe_2$	NiSe	LOW

$BPTe_2$	NiSe	LOW
$BAsO_2$	NiSe	MEDIUM
$BAsS_2$	NiSe	LOW
$BAsSe_2$	NiSe	LOW
$BAsTe_2$	NiSe	LOW
$BSbO_2$	NiSe	MEDIUM
$BSbS_2$	NiSe	LOW
$BSbSe_2$	NiSe	LOW
$BSbTe_2$	NiSe	LOW
$BBiO_2$	NiSe	MEDIUM
$BBiS_2$	NiSe	LOW
$BBiSe_2$	NiSe	LOW
$BBiTe_2$	NiSe	LOW
$AlNO_2$	NiSe	MEDIUM
$AlNS_2$	NiSe	MEDIUM
$AlNSe_2$	NiSe	MEDIUM
$AlNTe_2$	NiSe	MEDIUM
$AlPO_2$	NiSe	MEDIUM
$AlPS_2$	NiSe	HIGH
$AlPSe_2$	NiSe	HIGH
$AlPTe_2$	NiSe	HIGH
$AlAsO_2$	NiSe	MEDIUM
$AlAsS_2$	NiSe	HIGH
$AlAsSe_2$	NiSe	HIGH
$AlAsTe_2$	NiSe	HIGH
$AlSbO_2$	NiSe	MEDIUM
$AlSbS_2$	NiSe	HIGH

$AlSbSe_2$	NiSe	HIGH
$AlSbTe_2$	NiSe	HIGH
$AlBiO_2$	NiSe	MEDIUM
$AlBiS_2$	NiSe	HIGH
$AlBiSe_2$	NiSe	HIGH
$AlBiTe_2$	NiSe	HIGH
$GaNO_2$	NiSe	MEDIUM
$GaNS_2$	NiSe	MEDIUM
$GaNSe_2$	NiSe	MEDIUM
$GaNTe_2$	NiSe	LOW
$GaPO_2$	NiSe	MEDIUM
$GaPS_2$	NiSe	HIGH
$GaPSe_2$	NiSe	HIGH
$GaPTe_2$	NiSe	HIGH
$GaAsO_2$	NiSe	MEDIUM
$GaAsS_2$	NiSe	HIGH
$GaAsSe_2$	NiSe	HIGH
$GaAsTe_2$	NiSe	HIGH
$GaSbO_2$	NiSe	MEDIUM
$GaSbS_2$	NiSe	HIGH
$GaSbSe_2$	NiSe	HIGH
$GaSbTe_2$	NiSe	HIGH
$GaBiO_2$	NiSe	MEDIUM
$GaBiS_2$	NiSe	HIGH
$GaBiSe_2$	NiSe	HIGH
$GaBiTe_2$	NiSe	HIGH
$InNO_2$	NiSe	MEDIUM

$InNS_2$	NiSe	LOW
$InNSe_2$	NiSe	LOW
$InNTe_2$	NiSe	LOW
$InPO_2$	NiSe	MEDIUM
$InPS_2$	NiSe	HIGH
$InPSe_2$	NiSe	HIGH
$InPTe_2$	NiSe	HIGH
$InAsO_2$	NiSe	MEDIUM
$InAsS_2$	NiSe	HIGH
$InAsSe_2$	NiSe	HIGH
$InAsTe_2$	NiSe	HIGH
$InSbO_2$	NiSe	MEDIUM
$InSbS_2$	NiSe	MEDIUM
$InSbSe_2$	NiSe	HIGH
$InSbTe_2$	NiSe	HIGH
$InBiO_2$	NiSe	MEDIUM
$InBiS_2$	NiSe	HIGH
$InBiSe_2$	NiSe	HIGH
$InBiTe_2$	NiSe	HIGH
$TlNO_2$	NiSe	MEDIUM
$TlNS_2$	NiSe	LOW
$TlNSe_2$	NiSe	LOW
$TlNTe_2$	NiSe	LOW
$TlPO_2$	NiSe	MEDIUM
$TlPS_2$	NiSe	HIGH
$TlPSe_2$	NiSe	HIGH
$TlPTe_2$	NiSe	HIGH

$TlAsO_2$	NiSe	MEDIUM
$TlAsS_2$	NiSe	HIGH
$TlAsSe_2$	NiSe	HIGH
$TlAsTe_2$	NiSe	HIGH
$TlSbO_2$	NiSe	MEDIUM
$TlSbS_2$	NiSe	HIGH
$TlSbSe_2$	NiSe	HIGH
$TlSbTe_2$	NiSe	HIGH
$TlBiO_2$	NiSe	HIGH
$TlBiS_2$	NiSe	HIGH
$TlBiSe_2$	NiSe	HIGH
$TlBiTe_2$	NiSe	HIGH
BNO_2	FeSe	MEDIUM
BNS_2	FeSe	LOW
$BNSe_2$	FeSe	LOW
$BNTe_2$	FeSe	LOW
BPO_2	FeSe	MEDIUM
BPS_2	FeSe	LOW
$BPSe_2$	FeSe	LOW
$BPTe_2$	FeSe	LOW
$BAsO_2$	FeSe	MEDIUM
$BAsS_2$	FeSe	LOW
$BAsSe_2$	FeSe	LOW
$BAsTe_2$	FeSe	LOW
$BSbO_2$	FeSe	MEDIUM
$BSbS_2$	FeSe	LOW
$BSbSe_2$	FeSe	LOW

$BSbTe_2$	FeSe	LOW
$BBiO_2$	FeSe	MEDIUM
$BBiS_2$	FeSe	LOW
$BBiSe_2$	FeSe	LOW
$BBiTe_2$	FeSe	LOW
$AlNO_2$	FeSe	MEDIUM
$AlNS_2$	FeSe	MEDIUM
$AlNSe_2$	FeSe	MEDIUM
$AlNTe_2$	FeSe	LOW
$AlPO_2$	FeSe	MEDIUM
$AlPS_2$	FeSe	HIGH
$AlPSe_2$	FeSe	HIGH
$AlPTe_2$	FeSe	HIGH
$AlAsO_2$	FeSe	MEDIUM
$AlAsS_2$	FeSe	HIGH
$AlAsSe_2$	FeSe	HIGH
$AlAsTe_2$	FeSe	HIGH
$AlSbO_2$	FeSe	MEDIUM
$AlSbS_2$	FeSe	HIGH
$AlSbSe_2$	FeSe	HIGH
$AlSbTe_2$	FeSe	HIGH
$AlBiO_2$	FeSe	MEDIUM
$AlBiS_2$	FeSe	HIGH
$AlBiSe_2$	FeSe	HIGH
$AlBiTe_2$	FeSe	HIGH
$GaNO_2$	FeSe	HIGH
$GaNS_2$	FeSe	MEDIUM

$GaNSe_2$	FeSe	LOW
$GaNTe_2$	FeSe	LOW
$GaPO_2$	FeSe	HIGH
$GaPS_2$	FeSe	HIGH
$GaPSe_2$	FeSe	HIGH
$GaPTe_2$	FeSe	HIGH
$GaAsO_2$	FeSe	HIGH
$GaAsS_2$	FeSe	HIGH
$GaAsSe_2$	FeSe	HIGH
$GaAsTe_2$	FeSe	HIGH
$GaSbO_2$	FeSe	MEDIUM
$GaSbS_2$	FeSe	HIGH
$GaSbSe_2$	FeSe	HIGH
$GaSbTe_2$	FeSe	HIGH
$GaBiO_2$	FeSe	MEDIUM
$GaBiS_2$	FeSe	HIGH
$GaBiSe_2$	FeSe	HIGH
$GaBiTe_2$	FeSe	HIGH
$InNO_2$	FeSe	MEDIUM
$InNS_2$	FeSe	LOW
$InNSe_2$	FeSe	LOW
$InNTe_2$	FeSe	LOW
$InPO_2$	FeSe	MEDIUM
$InPS_2$	FeSe	HIGH
$InPSe_2$	FeSe	HIGH
$InPTe_2$	FeSe	HIGH
$InAsO_2$	FeSe	MEDIUM

$InAsS_2$	FeSe	HIGH
$InAsSe_2$	FeSe	HIGH
$InAsTe_2$	FeSe	HIGH
$InSbO_2$	FeSe	MEDIUM
$InSbS_2$	FeSe	HIGH
$InSbSe_2$	FeSe	HIGH
$InSbTe_2$	FeSe	HIGH
$InBiO_2$	FeSe	HIGH
$InBiS_2$	FeSe	HIGH
$InBiSe_2$	FeSe	HIGH
$InBiTe_2$	FeSe	HIGH
$TlNO_2$	FeSe	MEDIUM
$TlNS_2$	FeSe	LOW
$TlNSe_2$	FeSe	LOW
$TlNTe_2$	FeSe	LOW
$TlPO_2$	FeSe	HIGH
$TlPS_2$	FeSe	HIGH
$TlPSe_2$	FeSe	HIGH
$TlPTe_2$	FeSe	HIGH
$TlAsO_2$	FeSe	HIGH
$TlAsS_2$	FeSe	HIGH
$TlAsSe_2$	FeSe	HIGH
$TlAsTe_2$	FeSe	HIGH
$TlSbO_2$	FeSe	HIGH
$TlSbS_2$	FeSe	HIGH
$TlSbSe_2$	FeSe	HIGH
$TlSbTe_2$	FeSe	HIGH

$TlBiO_2$	FeSe	HIGH
$TlBiS_2$	FeSe	HIGH
$TlBiSe_2$	FeSe	HIGH
$TlBiTe_2$	FeSe	HIGH