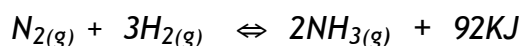


WORKSHEET
 FOR
 LE CHATELIER'S PRINCIPLE
 answers

For each of the following equilibrium reactions an action or activity has taken place that will initially alter the equilibrium of the reactions. You are to read the action performed and predict its effect on the chemical reactions.

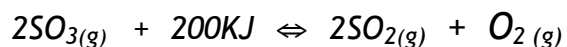
State which reaction becomes "dominant". State if the shift on the equilibrium is to the right or to the left. State whether the reactant listed increases or decreases in concentration as a result of the initial action.



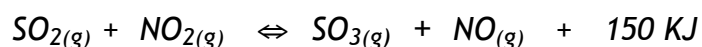
Action	Reaction Becoming dominant	Direction of shift	Effect on [N ₂]	Effect on [H ₂]	Effect on [NH ₃]	Effect on Temperature in vessel
Add N ₂	forward	To right	N/A	decrease	increase	increase
Remove NH ₃	forward	To right	decrease	decrease	N/A	increase
Increase temp.	reverse	To left	increase	increase	decrease	N/A
Increase Pressure	forward	To right	decrease	decrease	increase	increase
Remove H ₂	reverse	left	increase	N/A	decrease	decrease



Action	Reaction Becoming dominant	Direction of shift	Effect on [PBr ₅]	Effect on [PBr ₃]	Effect on [Br ₂]	Effect on Temperature in vessel
Add Br ₂	reverse	To left	increase	decrease	N/A	increase
Remove PBr ₃	forward	To right	decrease	N/A	increase	decrease
Increase Temp.	forward	To right	decrease	increase	increase	N/A
Increase Pressure	reverse	To left	increase	decrease	decrease	increase
Cool the Reaction	reverse	To left	increase	decrease	decrease	N/A



Action	Reaction Becoming dominant	Direction of shift	Effect on [SO3]	Effect on [SO2]	Effect on [O2]	Effect on Temperature in vessel
Remove SO ₂	forward	To right	decrease	N/A	increase	decrease
Heat the reaction	forward	To right	decrease	increase	increase	N/A
Lower Pressure	forward	To right	decrease	increase	increase	decrease
Cool the reaction	reverse	To left	increase	decrease	decrease	N/A
Increase O ₂	reverse	To left	increase	decrease	N/A	increase



Action	Reaction Becoming dominant	Direction of shift	Effect on [SO2]	Effect on [NO2]	Effect on [SO3]	Effect on [NO]	Effect on Temperature in vessel
Remove NO ₂	reverse	To left	increase	N/A	decrease	decrease	decrease
Add NO ₂	forward	To right	decrease	N/A	increase	increase	increase
Increase pressure	Both inc. rease proportionally	No net effect	No net change	No net change	No net change	No net change	No net change
Lower Temp.	forward	To right	decrease	decrease	increase	increase	N/A
Add SO ₃	reverse	To left	increase	increase	N/A	decrease	decrease



Action	Reaction Becoming dominant	Direction of shift	Effect on [UO2]	Effect on [HF]	Effect on [UF4]	Effect on [H2O]	Effect on Temperature in vessel
Add H ₂ O	reverse	To left	increase	increase	decrease	N/A	increase
Increase temp.	forward	To right	decrease	decrease	increase	increase	N/A
Lower pressure	reverse	To left	increase	increase	decrease	decrease	increase
Remove UF ₄	forward	To right	decrease	decrease	N/A	increase	decrease
Add HF	forward	To right	decrease	N/A	increase	increase	decrease