CLAIMS:

1. A process for producing a hydroprocessing catalyst, the process comprising:

(a) forming a reaction mixture comprising a source of a first metal oxide in a protic liquid and heating the reaction mixture under hydrothermal conditions to form a particulate metal oxide composition, the first metal oxide comprising an oxide of at least one first metal selected from Group 6 of the Periodic Table of Elements;

(b) mixing ~~a~~ the formed particulate metal oxide composition ~~comprising an oxide of at least one first metal selected from Group 6 of the Periodic Table of the Elements~~ with particles of a sulfide of at least one second metal selected from Groups 8 to 10 of the Periodic Table of the Elements to produce a particulate catalyst precursor; and

~~(b)~~(c) sulfiding the particulate catalyst precursor under conditions sufficient to at least partially convert the components of the particulate catalyst precursor into a layered metal sulfide having defect sites associated with the second metal sulfide.

2. The process of claim 1, wherein the at least one first metal is molybdenum and/or tungsten.

3. The process of claim 1 ~~or claim 2~~, wherein the particulate metal oxide composition comprises from ~~45 wt% to 70 wt%, preferably from~~ about 55 wt% to about 60 wt%~~,~~ of Group 6 metal oxide(s).

4. The process of ~~any of the previous claims~~ claim 1, wherein the particulate metal oxide composition further comprises an oxide of at least one further metal selected from Groups 8 to 10 of the Periodic Table of the Elements.

5. The process of claim 4, wherein the at least one further metal is cobalt and/or nickel.

6. The process of claim 4 ~~or claim 5~~, wherein the particulate metal oxide composition comprises up to about 45 wt% of Group 8 to 10 metal oxide(s).

~~7. The process of any one of the previous claims, wherein the particulate metal oxide composition is produced by forming a reaction mixture comprising a source of the first metal oxide in a protic liquid and heating the reaction mixture under hydrothermal conditions to form the particulate metal oxide composition.~~

~~8.~~7. The process of ~~any one of the previous claims~~ claim 1, wherein the at least one second metal sulfide is nickel sulfide and/or cobalt sulfide.

~~9.~~8. The process of ~~any one of claims 4-8~~ claim 1, wherein the particulate catalyst precursor comprises from about ~~15 wt% to about 35 wt%, preferably from about~~ 20 wt% to about 25 wt%~~,~~ of the second metal sulfide.

~~10.~~9. The process of ~~any one of the previous claims~~ claim 1, wherein the sulfiding is conducted by heating the particulate catalyst precursor in the presence of hydrogen sulfide at a temperature from about ~~350°C to about 425°C, preferably from about~~ 375°C to about 400°C, for about ~~1 hour to about 6 hours, preferably from about~~ 2 hours to about 4 hours.

~~11. A hydroprocessing catalyst composition produced by the process of any one of the previous claims.~~

~~12. A hydroprocessing method comprising contacting a hydrocarbon feedstock with hydrogen in the presence of the catalyst composition of claim 11 under conditions sufficient to hydroprocess the hydrocarbon feedstock.~~

~~13.~~10. A method for hydroprocessing a hydrocarbon-containing feedstock, the method comprising:

(a) producing a hydroprocessing catalyst according to the process of ~~any one of claims 1-10~~ claim 1; and

(b) contacting the hydrocarbon-containing feedstock with hydrogen in the presence of the hydroprocessing catalyst under conditions sufficient to hydroprocess the hydrocarbon feedstock.