CLAIMS

WE CLAIM:

1. A process for producing acetic acid comprising:
   obtaining hydrogen iodide in an acetic acid production system; and
   continually introducing a complexing agent into the system, wherein the complexing agent and hydrogen iodide interact to form a complex.
2. The process of claim 1 wherein the complexing agent is continually introduced as an acetic acid solution.
3. The process of claim 1 wherein the complexing agent comprises a catalyst stabilizer.
4. The process of claim 3 wherein the catalyst stabilizer comprises triphenylphosphine oxide.
5. The process of claim 1 wherein the complexing agent comprises a phosphine oxide.
6. The process of claim 1 wherein the complexing agent comprises a triphenylphosphine oxide.
7. An acetic acid product produced by the process of claim 1.
8. The process of claim 1 wherein the acetic acid production system comprises a drying column, the process further comprising continually introducing the complexing agent upstream of the drying column.
9. The process of claim 1 wherein the acetic acid production system comprises a reactor, the process further comprising continually introducing the complexing agent into the reactor.
10. The process of claim 1 wherein the acetic acid production system comprises a reactor and a stream in fluid communication with the reactor, the process further comprising continually introducing the complexing agent into the stream.
11. The process of claim 1 wherein the acetic acid production system comprises a flash vessel, the process further comprising continually introducing the complexing agent into the flash vessel.
12. The process of claim 1 wherein the acetic acid production system comprises a flash vessel and a stream in fluid communication with the flash vessel, the process further comprising continually introducing the complexing agent into the stream.

13. The process of claim 1 wherein the acetic acid production system comprises a light-ends column, the process further comprising continually introducing the complexing agent into the light-ends column.

14. The process of claim 1 wherein the acetic acid production system comprises a light-ends column and a stream in fluid communication with the light-ends column, the process further comprising continually introducing the complexing agent into the stream.

15. The process of claim 1 wherein the acetic acid production system comprises a drying column, the process further comprising continually introducing the complexing agent into the drying column.

16. The process of claim 1 wherein the acetic acid production system comprises a drying column and a stream in fluid communication with the drying column, the process further comprising continually introducing the complexing agent into the stream.

17. The process of claim 1 wherein the acetic acid production system comprises a recycle stream, the process further comprising continually introducing the complexing agent into the recycle stream.

18. The process of claim 1 wherein the catalyst is a rhodium catalyst or an iridium catalyst.

19. The process of claim 1 wherein acetic acid production system comprises a reaction mixture comprising water in a concentration of from about 0.2% to about 10% by weight.

20. The process of claim 1 wherein the complexing agent is introduced into the system in an amount based upon a rate of attrition of the complexing agent from a reactor in the system.

CLAIMS

WE CLAIM:

1. A process for producing acetic acid comprising:
   (i) producing acetic acid in a reactor, wherein the producing step includes a reaction comprising carbon monoxide and methanol in the presence of a catalyst;
   (ii) obtaining hydrogen iodide in an acetic acid production system; and
   (iii) continually introducing a complexing agent into the system downstream of the reactor,
   wherein the complexing agent comprises a phosphine oxide, and
   wherein the phosphine oxide and hydrogen iodide interact to form a complex.

2. The process of claim 1 wherein the complexing agent is continually introduced as an acetic acid solution.
3. The process of claim 1 wherein the complexing agent comprises a catalyst stabilizer.
4. The process of claim 3 wherein the catalyst stabilizer comprises triphenylphosphine oxide.
5. The process of claim 1 wherein the complexing agent is introduced upstream of the purification area.
6. The process of claim 1 wherein the phosphine oxide is triphenylphosphine oxide.
7. The process of claim 1 wherein the acetic acid production system comprises a drying column, the process further comprising continually introducing the complexing agent upstream of the drying column.
8. The process of claim 1 wherein the acetic acid production system comprises a reactor, the process further comprising continually introducing the complexing agent into the reactor.
9. The process of claim 1 wherein the acetic acid production system comprises a reactor and a stream in fluid communication with the reactor, the process further comprising continually introducing the complexing agent into the stream.
10. The process of claim 1 wherein the acetic acid production system comprises a flash vessel, the process further comprising continually introducing the complexing agent into the flash vessel.

11. The process of claim 1 wherein the acetic acid production system comprises a flash vessel and a stream in fluid communication with the flash vessel, the process further comprising continually introducing the complexing agent into the stream.
12. The process of claim 1 wherein the acetic acid production system comprises a light-ends column, the process further comprising continually introducing the complexing agent into the light-ends column.
13. The process of claim 1 wherein the acetic acid production system comprises a light-ends column and a stream in fluid communication with the light-ends column, the process further comprising continually introducing the complexing agent into the stream.
14. The process of claim 1 wherein the acetic acid production system comprises a drying column, the process further comprising continually introducing the complexing agent into the drying column.