## CLAIMS

1. A method for producing dimers, ~~trimers,~~ oligomers, and polymers from the oxidation of a hydrogen atom alpha to an aromatic ring comprising:

a. the introduction~~g~~ of an organic starting material containing at least one hydrogen atom alpha to an aromatic ring into a flowing stream of gas,

b. said gas is subsequently ~~mixing~~ mixed ~~said organic starting material in the stream of gas~~ with nitrous oxide;

c. a ~~reacting~~ reaction between said hydrogen atom to an ~~alpha with the~~ aromatic ring and said flowing stream of gas is then heated to ~~form a reaction product; and~~

~~heating said flowing stream of gas with the reaction product to~~ a reaction temperature to allow oxidation of the alpha hydrogen ~~atom alpha~~ and subsequent formation of ~~an output compound from the group consisting of~~ monomers, dimers, ~~trimers,~~ oligomers, ~~and~~ or polymers, ~~according to~~depending on said ~~reaction~~ temperature, as output of the reaction.

2. A method as in claim 1 wherein the organic starting material comprises xylene.

3. A method as in claim 1 where~~in~~ there are two hydrogen atoms alpha to the same aromatic ring.

4. A method as in claim 1 where~~in~~ the aromatic ring is benzene.

~~4.~~5. A method as in claim 1 where the aromatic ring is not a benzene.

~~5.~~6. A method as in claim 1 where~~in~~ the output ~~compound~~ of the reaction is mixed with ~~a~~ cool inert gase~~s~~.

~~6.~~7. A method as in claim 1 where~~in~~ the output of the reaction is attached to ~~pressure of the flowing stream of gas with the reaction product being heated to a reaction temperature is increased by applying~~ a back pressure device to allow higher pressure in the reaction.

~~7.~~8. A method as in claim 1 further comprising a step of mixing a plasma gas with said flowing stream of gas and the organic starting material and nitrous oxide, forming a reaction mixture.

~~8.~~9. A method as in claim 1 further comprising a step of exposing the output of the reaction ~~compound~~ to a magnetic field during condensation.

~~9.~~10. A method as in claim 1 further comprising a step of exposing the output of the reaction ~~compound~~ to an electric field during condensation.

~~10.~~11. A method for ~~producing~~ production of dimers~~, trimers~~, oligomers, and polymers from the oxidation of a hydrogen atom alpha to an aromatic ring comprising:

a. introduction~~g~~ of an organic starting material containing at least one hydrogen atom alpha to an aromatic ring into a flowing stream of gas,

b. said flowing stream of gas is subsequently mixed with a plasma gas forming a reaction mixture~~introducing monatomic oxygen to the stream of gas with the starting material~~; and

c. ~~heating said flowing stream of gas with the monatomic oxygen and starting material to a reaction temperature to allow oxidation of the hydrogen atom alpha and subsequent formation of an output compound from the group consisting of monomers, dimers, trimers, oligomers, and polymers, according to said reaction temperature~~said reaction mixture is then heated to a reaction temperature to allow oxidation of the alpha hydrogen and subsequent formation of monomers, dimers, oligomers, or polymers, as output of the reaction mixture.

~~11.~~12. A method as in claim ~~10~~ 11 wherein the organic starting material comprises xylene.

~~12.~~13. A method as in claim ~~10~~ 11 wherein the ~~step of introducing monatomic oxygen~~mixing of said flowing stream of gas with the plasma gas to form the reaction mixture includes a step of decomposing nitrous oxide.

14. A method as in claim ~~10~~ 11 where~~in the step of introducing monatomic oxygen further comprises mixing a plasma gas with said flowing stream of gas and the organic starting material~~there are two hydrogen atoms alpha to the same aromatic ring.

15. A method as in claim 11 where the aromatic ring is benzene.

~~13.~~16. A method as in claim 11 where the aromatic ring is not benzene.

~~14.~~17. A method as in claim ~~10~~ 11 where~~in~~ the output ~~compound~~ of the reaction mixture is mixed with ~~a~~ cool inert gases.

~~15.~~18. A method as in claim ~~10~~ 11 where~~in~~ the ~~pressure of the flowing stream of gas with the reaction product being heated to a reaction temperature is increased by applying a back pressure device~~output of the reaction mixture is attached to a back pressure device to allow the reaction to occur at a higher pressure.

~~16.~~19. A method as in claim ~~10~~ 11 further comprising a step of exposing the output of the reaction mixture ~~compound~~ to a magnetic field during condensation.

~~17.~~20. A method as in claim ~~10~~ 11 further comprising a step of exposing the output of the reaction mixture ~~compound~~ to an electric field during condensation.

~~18. A method of producing a cyclophane based compound, said method comprising steps of:~~

~~reacting monatomic oxygen with a starter compound comprising gaseous xylene in a heated environment to produce a reaction product;~~

~~heating the reaction product to a reaction temperature, said reaction temperature determining whether a monomer, dimer, trimer, oligomer or polymer is formed; and~~

~~condensing the vaporized reaction product on a substrate.~~

~~19. A method as in claim 18, further comprising a step of cooling the vaporized reaction product to facilitate condensing the vaporized reaction product on the substrate.~~

~~20. A method as in claim 19, further comprising a step of exposing the reaction product to a permittivity enhancing field while condensing the vaporized reaction product on the substrate, said permittivity enhancing field being a field from the group consisting of a magnetic field and an electric field.~~