What is claimed:

1. A process for producing an ozonide from an ethylenically unsaturated compound having between 8 and 30 carbon atoms and one or more unsaturated carbon to carbon double bonds, comprising the steps of

contacting an ozone enriched gas with an ethylenically unsaturated compound in an absorber having separate stages to form an ozonide; and

operating a safety system comprising:

monitoring an operating condition wherein the operating condition includes at least one of an operating temperature, a flow of ozone enriched gas, a pressure of ozone enriched gas, the flow of a liquid reactant, and the flow of a product in the absorber column and assigning a value to the monitored operating condition; and wherein each operating condition is independently monitored at the top, at the bottom and at each stage of the absorber;

comparing the operating condition value with a threshold value for the at least one condition; ~~and~~

affecting the formation of the product in response to the operating condition reaching the threshold value~~.~~, wherein the operating condition value is a temperature in the absorber column and the threshold value is a first threshold temperature between 100°F (37°C) and 140°F (60°C) and wherein the first temperature threshold is monitored at the top, bottom, and at each stage of the absorber and wherein the formation of product in response to the temperature reaching the first threshold value is affected by stopping the introduction of the ozone enriched gas to the absorber column and wherein the threshold value further includes a second threshold temperature that is greater than the first threshold temperature, and the second threshold temperature is between 110°F (43°C) and 150°F (66°C), and wherein the formation of the product in response to the temperature reaching the second threshold value is affected by direct addition of water into the absorber column.

~~2. The process of claim 1 wherein the operating condition value is a temperature in the absorber column and the threshold value is a first threshold temperature.~~

~~3. The process of claim 2 wherein the first threshold temperature is between about 100°F and about 140°F.~~

~~4. The process of claim 2 or 3 wherein the formation of product is affected by stopping the introduction of the ozone enriched gas to the absorber column.~~

~~5. The process of one of claims 2 to 4 wherein the threshold value further includes a second threshold temperature that is greater than the first threshold temperature.~~

~~6. The process of claim 5 wherein the second threshold temperature is about between about 110°F and about 150°F.~~

~~7. The process of claim 5 or 6 wherein the formation of the product is affected by introducing water into the absorber column.~~

~~8.~~2. The process of claim 1 wherein the operating condition value is a pressure of ozone enriched gas and the threshold value is an ozone enriched gas pressure threshold having a value between ~~about~~ 0 psig and ~~about~~ 15 psig; and wherein the operating condition value further includes a pressure of ozone enriched gas and the threshold value is an ozone enriched gas pressure threshold having a value between 0 psig and 15 psig (103400 pascal).

~~9. The process of one of claims 2 to 7 wherein the operating condition value further includes a pressure of ozone enriched gas and the threshold value is an ozone enriched gas pressure threshold having a value between about o psig and about 15 psig.~~

~~10.~~3. The process of claim ~~8 or 9~~ 2 wherein the formation of product is affected by stopping the introduction of the ozone enriched gas to the absorber column.

~~11.~~4. The process of claim 1 wherein the operating condition value is the flow of

liquid reactant.

~~12.~~5. The process of one of claims 2 to ~~10~~ 4 wherein the operating condition further includes the flow of liquid reactant.

~~13.~~6. The process of claim ~~11~~ 4 or ~~12~~ 5 wherein the flow of liquid reactant is monitored to detect the volume of the liquid reactant in the trough of the column; and wherein the threshold value is an increase of the volume of liquid reactant by at least 5% in the trough of the absorber column.

~~14. The process of claim 13 wherein the threshold value is an increase of the volume of liquid reactant by at least about 5% in the trough of the absorber column.~~

~~15.~~7. The process of one of claims ~~11~~ 4 to ~~14~~ 6 wherein the formation of product is affected by stopping the introduction of the ozone enriched gas to the absorber column.

~~16.~~8. The process of ~~claim~~ one of claims 1 to 7 wherein the operating condition value is/or further comprises the flow of product and is monitored by measuring the level of product near the bottom of the column and the threshold value is an increase in the height of ozonide relative to the bottom of the absorber column; wherein the formation of ozonide is affected by stopping the introduction of the ozone enriched gas to the absorber column.

~~17. The process of one of claims 1 to 15 wherein the operating condition value further comprises the flow of product and is monitored by measuring the level of product near the bottom of the column and the threshold value is an increase in the height of ozonide relative to the bottom of the absorber column.~~

~~18. The process claim 16 or 17 wherein the formation of ozonide is affected by stopping the introduction of the ozone enriched gas to the absorber column.~~

~~19.~~9. The process of one of claims 1 to ~~18~~ 8 further including monitoring the operating pressure in the absorber column and relieving the pressure within the absorber column if the operating pressure exceeds a threshold operating pressure; wherein the operating pressure within the absorber column is monitored with a rupture disk and the excess pressure in the absorber column is relieved by the bursting of the rupture disk.

~~20. The process of claim 19 wherein the operating pressure within the absorber column is monitored with a rupture disk and the excess pressure in the absorber column is relieved by the bursting of the rupture disk.~~

~~21.~~10. The process of claim ~~19 or 20~~ 9 wherein the threshold for relieving the pressure is between ~~about~~ 20 psig (137900 pascal) and ~~about~~ 6o psig (413700 pascal).

~~22.~~11. The process of one of claims 1 to ~~21~~ 10 further including monitoring the operating pressure of the ozone enriched gas prior to introduction into the absorber column and relieving the pressure of the ozone enriched gas prior to introduction into the absorber column if the operating pressure of the ozone enriched gas exceeds a threshold operating pressure.

~~23.~~12. The process of claim ~~22~~ 11 wherein the pressure of the ozone enriched gas is relieved by the opening a pressure relief valve and wherein the threshold for relieving the pressure is between 10 psig (68950 pascal) and 25 psig (172400 pascal).

~~24. The process of claim 22 or 23 wherein the threshold for relieving the pressure is between about 10 psig and about 25 psig.~~

13. The process of one of claims 1 to 12 wherein the unsaturated acid is oleic acid.