A subject matter of the present ~~invention~~disclosure is thus a process for the selective oxidation of the carbon monoxide present in a gas mixture comprising at least one hydrocarbon or one hydrocarbon derivative, said process comprising the stage consisting in bringing said gas mixture into contact with a solid catalyst capable of oxidizing the carbon monoxide to carbon dioxide at a chosen temperature, characterized in that said stage is carried out in a fluidized bed.

In a first aspect, there is provided a process for the selective oxidation of the carbon monoxide present in a gas mixture comprising at least one hydrocarbon or one hydrocarbon derivative, wherein said at least one hydrocarbon is selected from the group consisting of propylene, propane and any mixture thereof; and said at least one hydrocarbon derivative is selected from the group consisting of acrolein, acrylic acid and any mixture thereof, said process comprising the stage consisting in bringing said gas mixture into contact with a solid catalyst capable of oxidizing the carbon monoxide to carbon dioxide at a chosen temperature, characterized in that said stage is carried out in a fluidized bed.

The fluidized bed technology provides mixing of the solid and the gas mixture, and thus homogenization of the temperature of the catalyst. By obtaining a homogeneous temperature, it is thus possible to control the selectivity of the reaction for the oxidation of the carbon monoxide and to no longer destroy the molecules of economic value. This homogeneity confers, on the fluidized bed, an undeniable advantage in comparison with the fixed beds, which are generally subject to a high temperature gradient. The removal of the heat of the reaction can be provided by cooling pins positioned in the fluid bed. The coefficient for transfer of heat between the suspension and the

exchanger tubes is very high, and makes it possible to efficiently heat or cool the material.

The process for the selective oxidation of CO according to the ~~invention~~disclosure can be incorporated in any industrial process requiring bleeding of CO_2 and/or CO for chemical reasons (inhibition of the reaction), physical reasons (decrease in the Cp of the reaction gas) or safety reasons (flammability limits).

Another subject matter of the ~~invention~~disclosure is a process for the production of a hydrocarbon derivative comprising at least one stage of selective oxidation of the carbon monoxide present in a gas mixture comprising

at least one hydrocarbon or one hydrocarbon derivative using a fluidized bed comprising a solid catalyst capable of oxidizing carbon monoxide to carbon dioxide at a chosen temperature.

In a second aspect, there is provided a process for the production of a hydrocarbon derivative wherein said hydrocarbon is selected from the group consisting of propylene, propane and any mixture thereof, comprising at least one stage of selective oxidation of the carbon monoxide present in a gas mixture comprising at least one hydrocarbon or one hydrocarbon derivative, wherein said hydrocarbon derivative is selected from the group consisting of acrolein, acrylic acid and any mixture thereof, using a fluidized bed comprising a solid catalyst capable of oxidizing carbon monoxide to carbon dioxide at a chosen temperature.

Other characteristics and advantages of the ~~invention~~disclosure will more clearly emerge on reading the detailed description which follows and the nonlimiting implementational examples of the ~~invention~~disclosure.

Detailed description

The gas mixture subjected to the process for the selective oxidation of CO according to the invention comprises at least one hydrocarbon or one hydrocarbon derivative.

The hydrocarbons are saturated or mono- or diunsaturated and linear or branched hydrocarbons comprising from 2 to 6 carbon atoms, or aromatic hydrocarbons, which can be substituted, comprising from 6 to 12 carbon atoms.

Mention may be made, as examples of hydrocarbons, for example, of ethylene, propane, propylene, n-butane, isobutane, isobutene, butene, butadiene, isopentene, benzene, o-xylene, methylstyrene or naphthalene.

Preferably, the hydrocarbon is chosen from propylene or propane, alone or as a mixture.

The hydrocarbon derivative can be a product of the partial oxidation of a hydrocarbon and it can then be chosen from anhydrides, such as phthalic anhydride or maleic anhydride, aldehydes, such as acrolein or methacrolein, unsaturated carboxylic acids, such as acrylic acid or methacrylic acid, unsaturated nitriles, such as acrylonitrile, methacrylonitrile or atroponitrile, or their mixtures. Preferably, the