CLAIMS

1. A procedure of polymerisation in solution for the production of polymers, comprising the following steps:
   - continuously feeding one or more monomers selected from butadiene, styrene, isoprene, acrylonitrile, olefins or diolefins and mixtures thereof, one or more solvents in a quantity comprised between 70% and 90% by weight, preferably comprised between 80% and 90% by weight, and a catalytic system, to a first stirred reaction volume, wherein a single mixing cell is formed, in which the polymerisation begins until a conversion is attained that varies from 20% to 70% with respect to the final conversion achieved,
   - proceeding the polymerisation in at least one second stirred reaction volume connected in series to the first reaction volume, in which two or more mixing cells are formed, at the outlet of which the final conversion of the monomer is attained;

said procedure being characterised in that, in the first reaction volume the average residence time of the reagent mixture varies within an interval ranging from 10% to 25% with respect to the average residence time of the entire reaction volume.

2. The procedure according to claim 1, wherein, in the first reaction volume, the specific stirring power is greater than the specific stirring power of the volumes subsequent to the first.
3. The procedure according to claim 2, wherein, in the first reaction volume, the specific stirring power is greater than 2 kW/m^3.
4. The procedure according to claim 3, wherein, in the reaction volumes subsequent to the first volume the specific stirring power is comprised between 1 kW/m^3 and 2 kW/m^3.

5. The procedure according to any one of claims 1 to 4, wherein the average residence time of the entire reaction volume is typically comprised between 1 hour and 2 hours.
6. The polymerisation procedure for the production of polymers according to any one of claims from 1 to 5, wherein the average residence time of the monomer in the first reaction volume varies from 15% to 20% of the total residence time of the entire reaction volume.
~~7. The polymerisation procedure for the production of polymers according to any one of claims 1 to 6, wherein the monomer is selected from butadiene, styrene, isoprene, acrylonitrile, olefins or diolefins and mixtures thereof.~~
~~8.~~7. The polymerisation procedure for the production of polymers according to ~~claim 7~~any one of claim 1 to 6, wherein the monomer is 1,3-butadiene.
~~9.~~8. The polymerisation procedure for the production of polymers according to any one of claims 1 to ~~8~~7, wherein the solvent is selected from hexanes, pentanes, heptanes and mixtures thereof.
~~10.~~9. A reaction configuration for the production of a polymer comprising one or more stirred reactors connected in series; said configuration being characterised in that:
    - the first stirred reactor is a single mixing cell and has a reaction volume equal to a value varying from 1/10 to 1/4 with respect to the total reaction volume, wherein the total reaction volume is the sum of the reaction volumes of all reactors present;
    - the reactors subsequent to the first, connected in series, each have a reaction volume in which two or more mixing cells are present.

~~11.~~10. The reaction configuration according to claim ~~10~~9, wherein the reaction volume of the first reactor varies from 1/8 to 1/5 of the total reaction volume, wherein the total reaction volume is the sum of the reaction volumes of

all reactors present.

~~12.~~11. The reaction configuration according to claims ~~10~~ 9 and ~~11~~10, wherein the number of reactors ranges from 2 to 5.

12~~13~~. The reaction configuration according to any one of claims from ~~10~~ 9 to ~~12~~11, wherein the first reactor is equipped with agitator stirring device having a single Rushton radial flow impeller, or two or more Hydrofoil axial flow impellers.

~~14.~~13. The reaction configuration according to any one of claims ~~10~~ 9 to ~~13~~12, wherein the reactors subsequent to the first are equipped with an agitator device having two or more Rushton radial flow impellers.

~~15.~~14. The polymerisation procedure according to any one of claims 1 to ~~9~~8, which uses the reaction configuration according to any one of claims ~~10~~ 9 to 13~~14~~.