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(54) Title: AUTOTHERMAL CRACKING OF HYDROCARBONS

(57) Abstract: The invention relates to a process for producing olefins from a waste plastics pyrolysis oil feed stream containing hydrocarbons by pyrolytic cracking of the hydrocarbons in an autothermal reactor, said process comprising: pre-heating an oxygen containing stream and a hydrogen and/or methane containing stream outside the autothermal reactor; feeding the pre-heated oxygen containing stream and the pre-heated hydrogen and/or methane containing stream into a burner of the autothermal reactor; generating steam in a combustion zone of the autothermal reactor; pre-heating a waste plastics pyrolysis oil feed stream containing hydrocarbons outside the autothermal reactor; feeding the pre-heated feed stream containing hydrocarbons into the autothermal reactor; mixing the steam generated in the combustion zone with the pre-heated feed stream containing hydrocarbons in a mixing and cracking zone of the autothermal reactor, by feeding the steam and the pre-heated feed stream containing hydrocarbons into the mixing and cracking zone from substantially opposite directions, and pyrolytically cracking the hydrocarbons to provide an effluent containing olefins.



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