{

"problem\_data" : {

"problem\_name" : "polimero\_prueba\_q",

"domain\_size" : 3,

"parallel\_type" : "OpenMP",

"echo\_level" : 0,

"start\_time" : 0.0,

"end\_time" : 10.0

},

"output\_processes" : {

"gid\_output" : [{

"python\_module" : "gid\_output\_process",

"kratos\_module" : "KratosMultiphysics",

"process\_name" : "GiDOutputProcess",

"help" : "This process writes postprocessing files for GiD",

"Parameters" : {

"model\_part\_name" : "FluidModelPart.fluid\_computational\_model\_part",

"output\_name" : "polimero\_prueba\_q",

"postprocess\_parameters" : {

"result\_file\_configuration" : {

"gidpost\_flags" : {

"GiDPostMode" : "GiD\_PostBinary",

"WriteDeformedMeshFlag" : "WriteDeformed",

"WriteConditionsFlag" : "WriteConditions",

"MultiFileFlag" : "MultipleFiles"

},

"file\_label" : "time",

"output\_control\_type" : "time",

"output\_frequency" : 0.00000001,

"body\_output" : true,

"node\_output" : false,

"skin\_output" : false,

"plane\_output" : [],

"nodal\_results" : ["VELOCITY","PRESSURE","TEMPERATURE","FACE\_HEAT\_FLUX","BODY\_FORCE"],

"gauss\_point\_results" : []

},

"point\_data\_configuration" : []

}

}

}],

"vtk\_output" : [{

"python\_module" : "vtk\_output\_process",

"kratos\_module" : "KratosMultiphysics",

"process\_name" : "VtkOutputProcess",

"help" : "This process writes postprocessing files for Paraview",

"Parameters" : {

"model\_part\_name" : "FluidModelPart.fluid\_computational\_model\_part",

"output\_control\_type" : "step",

"output\_frequency" : 1,

"file\_format" : "ascii",

"output\_precision" : 7,

"output\_sub\_model\_parts" : true,

"folder\_name" : "vtk\_output",

"save\_output\_files\_in\_folder" : true,

"nodal\_solution\_step\_data\_variables" : ["VELOCITY","PRESSURE","TEMPERATURE","FACE\_HEAT\_FLUX","BODY\_FORCE"],

"nodal\_data\_value\_variables" : [],

"element\_data\_value\_variables" : [],

"condition\_data\_value\_variables" : []

}

}]

},

"restart\_options" : {

"SaveRestart" : "False",

"RestartFrequency" : 0,

"LoadRestart" : "False",

"Restart\_Step" : 0

},

"solver\_settings" : {

"solver\_type" : "ThermallyCoupledPfem2",

"domain\_size" : 3,

"echo\_level" : 0,

"fluid\_solver\_settings" : {

"model\_part\_name" : "FluidModelPart",

"domain\_size" : 3,

"solver\_type" : "Monolithic",

"model\_import\_settings" : {

"input\_type" : "mdpa",

"input\_filename" : "polimero\_prueba\_q"

},

"echo\_level" : 0,

"compute\_reactions" : true,

"maximum\_iterations" : 10,

"reform\_dofs\_at\_each\_step": true,

"relative\_velocity\_tolerance" : 0.001,

"absolute\_velocity\_tolerance" : 1e-5,

"relative\_pressure\_tolerance" : 0.001,

"absolute\_pressure\_tolerance" : 1e-5,

"volume\_model\_part\_name" : "Parts\_Parts\_Auto1",

"skin\_parts" : ["NoSlip3D\_No\_Slip\_Auto1"],

"no\_skin\_parts" : [],

"time\_stepping" : {

"automatic\_time\_step" : false,

"time\_step" : 0.01

},

"alpha":0.0,

"move\_mesh\_strategy": 2,

"formulation" : {

"element\_type" : "vms",

"use\_orthogonal\_subscales" : false,

"dynamic\_tau" : 1.0

}

},

"thermal\_solver\_settings" : {

"solver\_type" : "transient",

"analysis\_type" : "non\_linear",

"model\_part\_name" : "ThermalModelPart",

"domain\_size" : 3,

"model\_import\_settings" : {

"input\_type" : "mdpa",

"input\_filename" : "polimero\_prueba\_q"

},

"material\_import\_settings" : {

"materials\_filename" : "BuoyancyMaterials.json"

},

"reform\_dofs\_at\_each\_step": true,

"line\_search" : false,

"echo\_level" : 0,

"compute\_reactions" : false,

"max\_iteration" : 10,

"convergence\_criterion" : "residual\_criterion",

"solution\_relative\_tolerance" : 1e-5,

"solution\_absolute\_tolerance" : 1e-7,

"residual\_relative\_tolerance" : 1e-5,

"residual\_absolute\_tolerance" : 1e-7,

"problem\_domain\_sub\_model\_part\_list" : ["Parts\_Parts\_Auto1"],

"processes\_sub\_model\_part\_list" : ["TEMPERATURE\_Parts\_Auto1","HeatFlux3D\_Thermal\_face\_conditions\_Auto3","ImposedTemperature3D\_Imposed\_temperature\_Auto1","ThermalFace3D\_Thermal\_face\_conditions\_Auto3"],

"time\_stepping" : {

"time\_step" : 0.01

}

}

},

"processes" : {

"constraints\_process\_list" : [{

"python\_module" : "apply\_noslip\_process",

"kratos\_module" : "KratosMultiphysics.FluidDynamicsApplication",

"Parameters" : {

"model\_part\_name" : "FluidModelPart.NoSlip3D\_No\_Slip\_Auto1"

}

},{

"python\_module" : "assign\_scalar\_variable\_process",

"kratos\_module" : "KratosMultiphysics",

"Parameters" : {

"model\_part\_name" : "ThermalModelPart.TEMPERATURE\_Parts\_Auto1",

"variable\_name" : "TEMPERATURE",

"constrained" : false,

"value" : 298.0,

"interval" : [0.0,0.0]

}

},{

"python\_module" : "assign\_scalar\_variable\_process",

"kratos\_module" : "KratosMultiphysics",

"Parameters" : {

"model\_part\_name" : "ThermalModelPart.HeatFlux3D\_Thermal\_face\_conditions\_Auto3",

"variable\_name" : "FACE\_HEAT\_FLUX",

"constrained" : false,

"value" : 1000000.0,

"interval" : [0.0,1000.0]

}

},{

"python\_module" : "assign\_scalar\_variable\_process",

"kratos\_module" : "KratosMultiphysics",

"Parameters" : {

"model\_part\_name" : "ThermalModelPart.ImposedTemperature3D\_Imposed\_temperature\_Auto1",

"variable\_name" : "TEMPERATURE",

"constrained" : true,

"value" : 298.0,

"interval" : [0.0,1000.0]

}

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"python\_module" : "apply\_thermal\_face\_process",

"kratos\_module" : "KratosMultiphysics.ConvectionDiffusionApplication",

"Parameters" : {

"model\_part\_name" : "ThermalModelPart.ThermalFace3D\_Thermal\_face\_conditions\_Auto3",

"ambient\_temperature" : 273.15,

"add\_ambient\_radiation" : true,

"emissivity" : 0.9,

"add\_ambient\_convection" : true,

"convection\_coefficient" : 4.0,

"interval" : [0.0,100.0]

}

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"python\_module" : "apply\_boussinesq\_force\_process",

"kratos\_module" : "KratosMultiphysics.FluidDynamicsApplication",

"process\_name" : "ApplyBoussinesqForceProcess",

"Parameters" : {

"model\_part\_name" : "ThermalModelPart.Boussinesq\_\_Boussinesq\_hidden\_",

"gravity" : [0.0,-9.81,0.0],

"ambient\_temperature" : 293.15

}

}]

}

}