Estimation of the friction factor fF

Here, the Colebrook equation is to be solved iteratively

$$\frac{1}{\sqrt{f_F}} = -2\log_{10}\left(\frac{\epsilon}{3.72D} + \frac{2.51}{N_{Re}\sqrt{f_F}}\right)$$

This process requires to rewrite Colebrook's equation as follows

$$f_F^{New} = \frac{0.25}{\log_{10}\left(\frac{\epsilon}{3.72D} + \frac{2.51}{N_{Re}\sqrt{f_F^{Guess}}}\right)^2}$$

Data	
Kinematic viscosity, m2/s	0.56
Pipe inside diameter, m	0.1
Fluid velocity, m/s	30000
Pipe roughness, m	0.001
Reynolds number	5357.142857
Result	
Friction factor	0.04670105407
% error	0

Iterative calculations			
Iteration #	**fF guess**	**fF new**	**% error**
1	0.005	0.06061541634	91.75127335
2	0.06061541634	0.045732418	32.54365065
3	0.045732418	0.04678342787	2.246543098
4	0.04678342787	0.04669415954	0.1911766542
5	0.04669415954	0.04670163191	0.01600023368
6	0.04670163191	0.04670100565	0.001340991734
7	0.04670100565	0.04670105813	0.000112376348
8	0.04670105813	0.04670105373	0.000009417334
9	0.04670105373	0.0467010541	0.000000789188
10	0.0467010541	0.04670105407	0.000000066135
11	0.04670105407	0.04670105407	0.000000005542
12	0.04670105407	0.04670105407	0.000000000464
13	0.04670105407	0.04670105407	0
14	0.04670105407	0.04670105407	0
15	0.04670105407	0.04670105407	0
16	0.04670105407	0.04670105407	0
17	0.04670105407	0.04670105407	0
18	0.04670105407	0.04670105407	0
19	0.04670105407	0.04670105407	0
20	0.04670105407	0.04670105407	0
21	0.04670105407	0.04670105407	0
22	0.04670105407	0.04670105407	0
23	0.04670105407	0.04670105407	0
24	0.04670105407	0.04670105407	0
25	0.04670105407	0.04670105407	0
26	0.04670105407	0.04670105407	0
27	0.04670105407	0.04670105407	0
28	0.04670105407	0.04670105407	0
29	0.04670105407	0.04670105407	0
30	0.04670105407	0.04670105407	0 << RESULT