

Dim VR as double = 0.15 '[L]  
Dim FSP as double = VR \* 6  
Dim DOSP as double = 40  
Dim PHSP as double = 7.1  
Dim FBSP as double  
Dim FCSP as double = VR \* 1000 / 24 '[mL/h]  
Dim FDSP as double = FCSP + FBSP  
Dim TSP as double = 37 '[°C]  
Dim NSP as double = 150.5 \* (VR ^ (1/3)) '[rpm]  
Dim PumpBActive as boolean  
Dim PumpCActive as boolean  
Dim PumpDActive as boolean  
Dim TWait as double = 24 ' Wait before pump start [h]  
Dim InoculationTime\_H as double

Dim PHP as double = 10  
Dim PHTi as double = 3600 '[s]  
Dim PHDeadband as double = 0.02

With P

.FSP = FSP  
.DOSP = DOSP  
.PHSP = PHSP  
.FCSP = FCSP  
.FDSP = FDSP  
.TSP = TSP  
.NSP = NSP  
.DirCCW = true  
.PHP = PHP  
.PHTi = PHTi  
.PHDeadband = PHDeadband

end with

If P.InoculationTime\_H > 2 then  
    if P.PumpDActive = False Then  
        If P.InoculationTime\_H > TWait then  
            P.PumpCActive = True  
            P.PumpDActive = True  
            P.LogMessage("Start of perfusion")  
        end if  
    end if  
If P.DOActive = False Then  
    If P.DOPV < 40 Then  
        P.DOActive = True  
        P.LogMessage("Start of DO control")  
    end if  
end if

```
If P.PHActive = False Then
    If P.PHPV < 7.1 Then
        P.PHActive = True
        P.PumpBActive = True
        P.LogMessage("Start of pH control")
    end if
end if
```

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If P.InoculationTime_H > 48 Then
    P.FCSP = VR * 1000 / 24 * 1.5'[mL/h]
    P.FDSP = P.FCSP + P.FBSP
end if
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If P.InoculationTime_H > 72 Then
    P.FCSP = VR * 1000 / 24 * 3'[mL/h]
    P.FDSP = P.FCSP + P.FBSP
end if
```

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If P.InoculationTime_H > 96 Then
    P.FCSP = VR * 1000 / 24 * 4'[mL/h]
    P.FDSP = P.FCSP + P.FBSP
end if
```

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If P.InoculationTime_H > 120 Then
    P.FCSP = VR * 1000 / 24 * 6'[mL/h]
    P.FDSP = P.FCSP + P.FBSP
end if
```

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If P.InoculationTime_H > 144 Then
    P.FCSP = VR * 1000 / 24 * 7'[mL/h]
    P.FDSP = P.FCSP + P.FBSP
end if
```