

## Durand Calculator:

Works by reading  $d_{50}$  input by the user and then interpolating every  $C_v$  value for that  $d_{50}$ . Afterwards, it reads  $C_v$  input by the user, and interpolates the previous interpolated values again, this time to get the final FL result.

All the interpolations are linear. For some reason, some results don't match perfectly what the provided Excel outputs, but doing the calculations by hand shows that the page is working as intended. Maybe the Excel file does another type of interpolation that I'm not aware of, and if that is the case and you want it corrected, please let me know.

The screenshot displays the Durand Calculator interface. On the left, the 'Inputs' section shows 'Variable Name ( $d_{50}$ )' set to 1500  $\mu\text{m}$  and 'Volume Concentration ( $C_v$ )' set to 10 %. The 'Calculate' button is highlighted, and the 'Durand Factor ( $F_L$ )' is shown as 1.393. Below the inputs is a CASIO calculator displaying the result 1.393. To the right, an Excel spreadsheet shows a table of Volume concentration  $C_v$  [%] for various  $d_{50}$  values. The table is as follows:

$d_{50}$ [ $\mu\text{m}$ ]	2	5	10	15
10	0,1	0,124	0,14	0,148
20	0,2	0,248	0,28	0,296
40	0,4	0,496	0,56	0,592
60	0,544	0,662	0,752	0,792
80	0,632	0,746	0,856	0,896
100	0,72	0,83	0,96	1
200	0,93	1,08	1,21	1,27
400	1,1	1,29	1,42	1,47
600	1,17	1,375	1,465	1,505
800	1,206	1,396	1,454	1,482
1000	1,23	1,4	1,43	1,45
2000	1,302	1,35	1,356	1,362

Below the table, the function  $F_L$  is defined as 'Slurry\_Fl\_Durand\_ $d_{50}$ \_Cv( $D_{50}$ ,  $C_v$ )'. The inputs for the function are  $d_{50} = 1500$   $\mu\text{m}$  and  $C_v = 10$  %, resulting in  $F_L = 1,380$ .

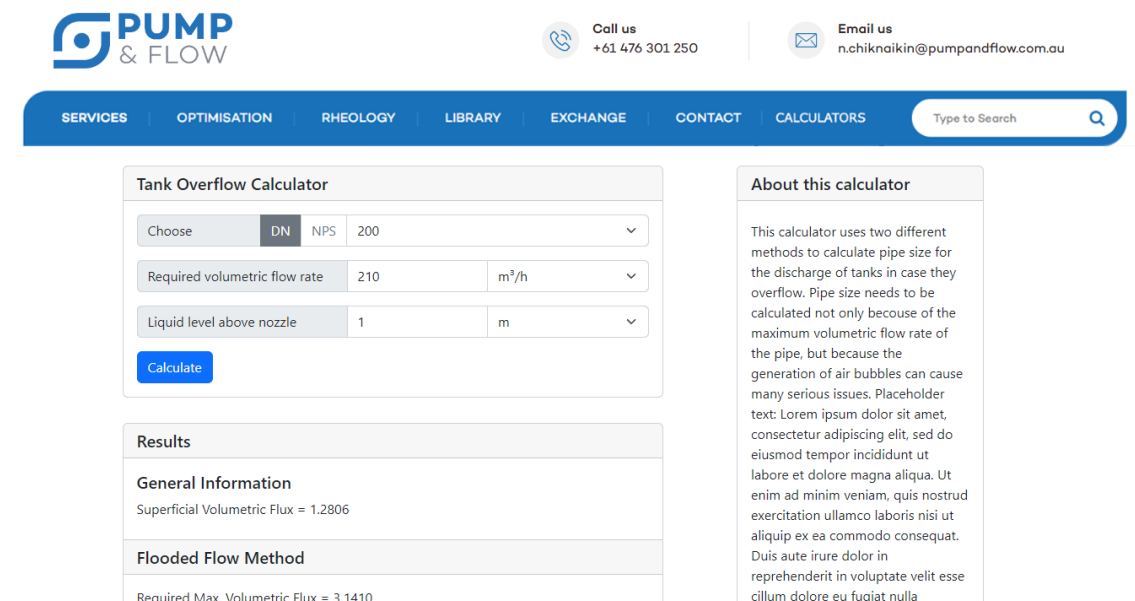
Do let me know if you want the FL factor graph added to the site as well, and in that case, if you want it to show results, interpolated curves, etc.

## Site integration:

I have looked at your website and one possible way of integrating the calculators could be by adding a button on the main navigation bar leading to them, with a dropdown menu that allows the user to choose which calculator to use:



After choosing the desired calculator, users are taken to a subpage (still inside your domain and never leaving your site) where the calculator can be used:



The styling of the calculator can be tweaked to better match the site, so everything looks integrated and consistent.

Regarding Python and hosting: The calculators are written in JavaScript, which is similar to Python but can be run in the browser. This way, you just add the code to the page and that's it, you don't need to pay for additional hosting, a VPS or anything. It can be hosted within the page and hosting service you are already using.

Python cannot be run directly on the web browser. Instead, Python is used on the server side when a webpage has back-end features such as user login systems and more. For web apps such as this calculator, it makes much more sense to write the code in JavaScript and let it run in the browser, since it is cheaper for you and faster for the user.