Converting LACHAT output to nutrient content

Soil nutrient content
All data will be in the mass of the element. For example, PO_4-P and NO_3-N

1. **Calculate the blank-corrected concentration** by subtracting the concentration of the extracting solution blank from all the concentrations of samples that were extracted from that solution. For example you might have made several batches of KCl, so each batch needs its own blank.
2. **Convert to mg of element** by multiplying the blank-corrected concentration by the amount of extracting solution used (in L).
3. **Convert to mg/kg of soil** by dividing the mg of element by the mass of the soil used in the extraction in dry weight equivalent (DWE) mass and multiply by 1000.
   a. **DWE** = fresh mass - (fresh mass * % water in fresh mass)
   b. **DWE** may be the same as the air-dry soil, if you did not do your extraction on fresh soil.

Example 1 (Mehlich 3-P):

Step 1: 9.3 mg P/L - 0.18 mg P/L (blank) = 9.1 mg P/L
Step 2: 9.1 mg P/L * 0.02L extracting solution = 0.182 mg P
Step 3: 0.182 mg P/ (2.0 g dwe) * 1000 = 91 mg P/kg

Leaf nutrient or soil content from Kjedahl digestion
All data will be in the mass of the element. For example, PO_4-P and NO_3-N

1. **Calculate the blank-corrected concentration** by subtracting the concentration of the extracting solution blank from all the concentrations of samples that were extracted from that solution. For example you might have made several batches of KCl, so each batch needs its own blank.
2. **Convert to mg of the element** by multiplying the blank-corrected concentration by the amount of digestion solution used (0.075 L, since all tubes are filled to 75mL).
3. **Convert to mg/kg of soil** by dividing the mg of element by the mass of the soil (0.1g for leaves, 0.5g for soil) used in the extraction in dry weight equivalent (DWE) mass.
   a. **DWE** = air-dry mass - (air-dry mass * % water in air-dry mass)
   b. **For leaves,** you report units of mg/g
   c. **For soil,** you report units of ug P/g (or mg P/kg), so multiply by 1000

Example 2 (leaves):

Step 1: 0.79 mg P/L - 0.072 mg P/L (blank) = 0.72 mg P/L
Step 2: 0.72 mg P/L * 0.075L extracting solution = 0.054 mg P
Step 3: 0.054 mg P/ (0.1000 g dwe) = 0.54 mg P/g