11-25-20
Summary of Public Employees for Environmental Responsibility's (PEER's)
PFAS tests on Anvil 10+10

PEER tested one jug of Anvil 10+10 for per-and polyfluoroalkyl substances (PFAS) five times with Eurofins Lancaster Laboratories. Testing for PFAS in matrices other than drinking water is difficult, as other substances in the substrate being tested can cause interference. Both the reporting limits ("RL," the lowest concentration of a substance that can reliably be reported) and the Method Detection Limits ("MDL," the limit below which the machinery cannot detect a substance) for PFAS in pesticides are higher than that for drinking water. If a result is qualified with a "J," the result is less than the RL, but greater than or equal to the MDL. In other words, a J qualifier means that the compound is present, but the precise amount cannot be reliably reported.

Test Results from One Jug of Anvil

Tests 1 and 2: On *August 27, 2020*, we received the results from two tests from the jug of Anvil 10+10. For Test 1, the lab indicated there was 250 ng/L (also known as parts per trillion, or ppt) of perfluorooctanoic acid (PFOA), and 410 ppt of HFPO-DA, a GenX replacement for PFOA (see page 6 of "August 27, 2020 Analytical Report"). Both were qualified with a J. Therefore, we know that both PFAS are in the Anvil 10+10, somewhere between the MDL (250 ppt) and the RL (1,000 ppt for PFOA, and 1,500 ppt for HFPO-DA).

Test 2 from *August 27, 2020* yielded a result of a non-detect (ND) of PFOA, and 500 ppt of HFPO-DA. We know that PFOA is in the Anvil 10+10 because of Test 1. Therefore, the ND in Test 2 means that the level of PFOA was below the MDL, but *likely* hovering around our MDL of 250 ppt. Technically, the PFOA could be anywhere between 0 ppt and 249 ppt, but because of our first test, we are operating on the assumption that it is present, but just under the MDL.

Test 3: On *September 15, 2020*, we received results from a third sample from the same jug of Anvil 10+10. The lab results showed ND for all PFAS tested (see page 7 of "September 15, 2020 Analytical Report"). The ND result is likely the result of the PFAS hovering around the detection limits of 250 ppt.

Tests 4 and 5: On *October 23, 2020*, we received results from a fourth and fifth sample taken from the same jug of Anvil 10+10. The results from Test 4 were 260 ppt of HFPO-DA, a ND for PFOA; and a ND for both PFOA and HFPO-DA in Test 5 (see page 6 of "October 23, 2020 Analytical Report"). Again, the ND simply means that the PFAS is in there, but likely just below the MDL of 250 ppt.

Other Analyses

PEER alerted Massachusetts Department of Environmental Protection (MADEP) to its results, and MADEP independently tested nine samples of Anvil 10+10 from five different containers, with a different laboratory. MADEP found eight different PFAS, including PFOA and PFOS. Some PFAS levels were over 700 ppt. It is not clear whether the levels of PFAS found in Anvil 10+10 are indicative of contamination, or an added ingredient. PEER believes that a total organic fluorine test is warranted. This test would tell us two things: first, if there are other PFAS in the pesticide that we cannot measure; and second, whether these PFAS are added deliberately.