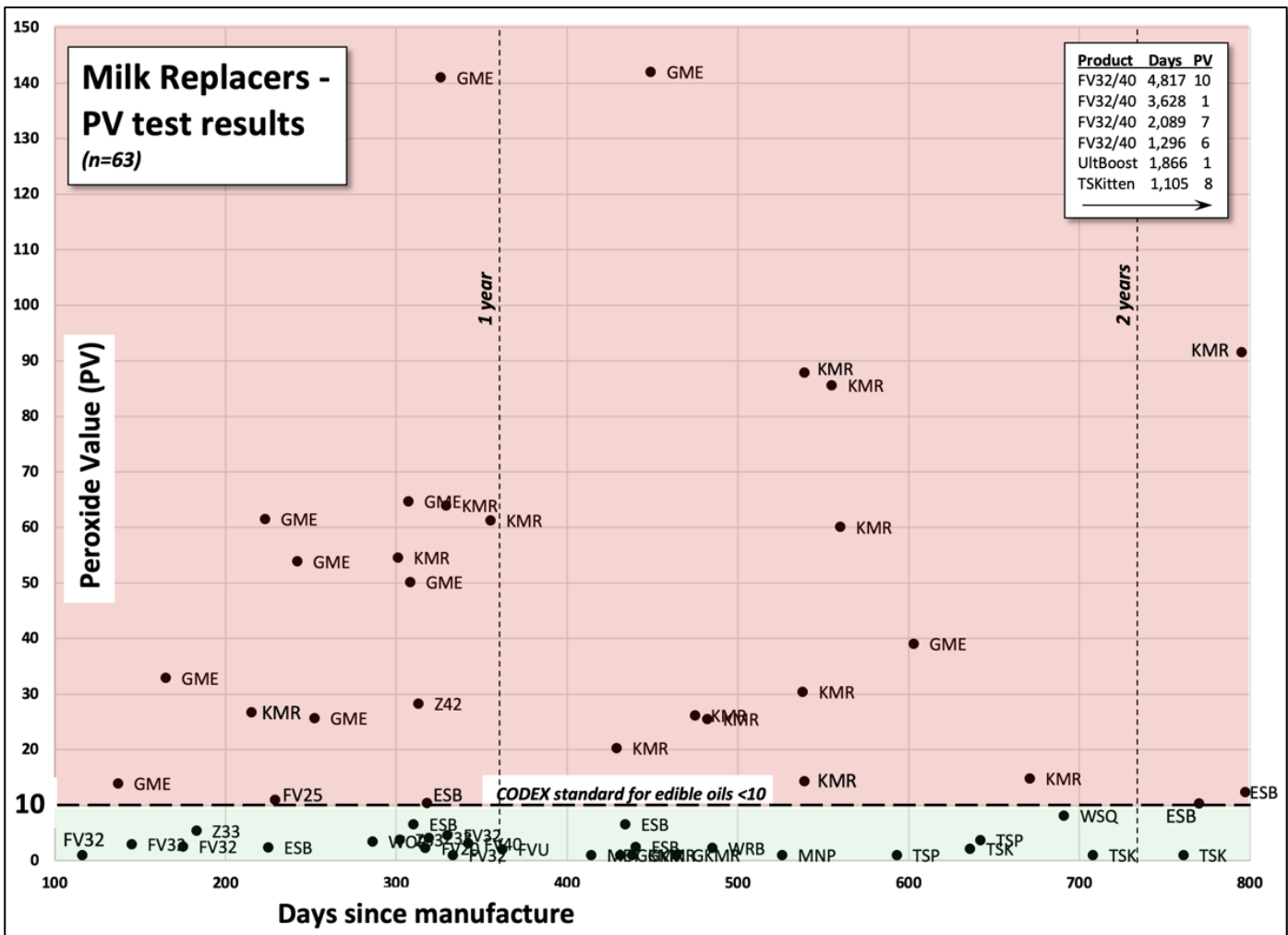


Rancidity testing in milk replacers – Early 2024 update

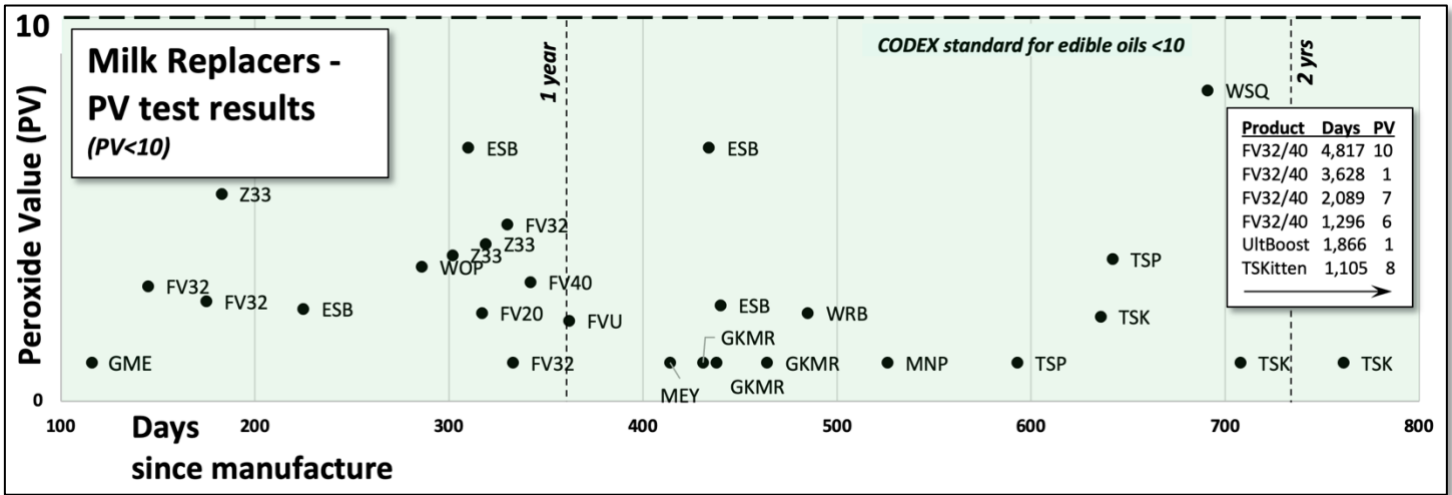
Recent independent lab testing has confirmed prior trends of chronic rancidity in two milk replacers. Four samples of KMR and one of GME all had Peroxide Values (PV) test results exceeding acceptable levels, indicating the onset of rancidity progression. Elevated PV values have been an ongoing issue for these two widely used milk replacers. Three other products – Esbilac, Tailspring Kitten and Fox Valley 32/40 all tested within acceptable limits that indicate satisfactory shelf-stability. Fox Valley 25/30 tested at PV 11, just slightly above the PV standard for edible oils of 10 or below. The accompanying table recaps those test results showing days since manufacture and PV result.

	Days since manufacture	PV test result
FV32/40	116	1
TSKitten	1105	8
Esbilac	770	10
Esbilac	318	10
CODEX standard edible oils		<10
FV25/30	229	11
KMR	539	14
KMR	215	27
KMR	539	88
KMR	795	92
GME	326	141

The following two charts of PV tests from 2019-2023 for 16 milk replacers helps to put these 10 recent tests in context. This current round is included in the total of 63 samples. As shown, most products tested consistently tested in the green shaded area which is at or below a PV of 10, the international CODEX standard. It is remarkable to see that some of the samples for Fox Valley continued to test below PV10 even at 3 to 10+ years after the manufacture date. Unfortunately, the GME and KMR products continue to demonstrate poor shelf-stability, even after a short period of time. Most other milk replacers consistently have PVs < 10 and are shown in the green-shaded area in the first chart and in more detail in the second chart.

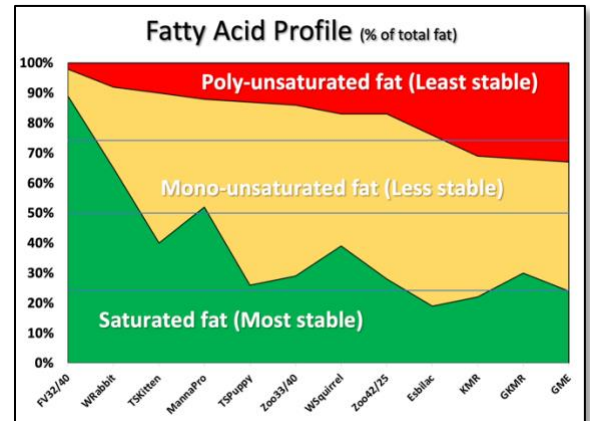


Many factors can influence the onset of rancidity in any powdered milk replacer. This is especially so with those with relatively high overall fat content, such as those routinely used by rehabilitators to better match high fat composition of many wild

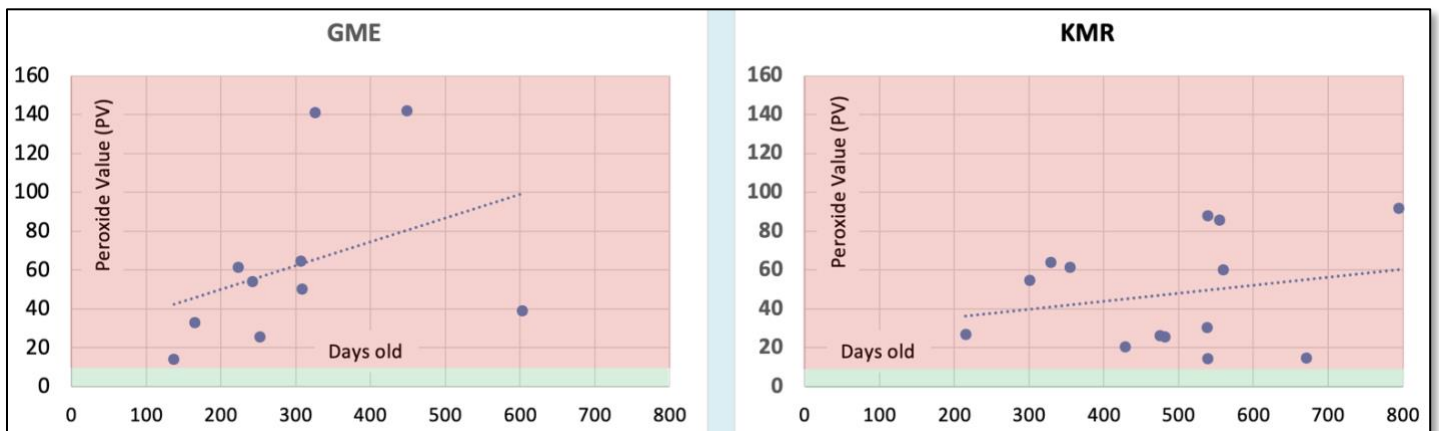


mammal milks. Manufacturers strive to formulate their products for shelf-stability, generally indicating between 18-24 months, and likely engaging in quality control measures to ensure that products leave the plant as fresh as possible.

Improper handling and storage can have negative impacts, especially exposure to heat and/or air. This can be problematic in summer months during shipment with unrefrigerated train cars, trucks and warehouses. Once in hand, more issues are created if products are not stored properly tightly sealed, refrigerated or frozen. Products containing higher unsaturated fat content are more susceptible to the effects of rancidity, with the saturated fats being more stable. As shown at right, GME and KMR have the highest polyunsaturated fat content.



The following two charts reveal instances when GME and KMR have tested with higher PV values indicating the onset of rancidity. The green shaded area in the charts indicates the acceptable range of PV values for edible oils. None of the 10 GME or 14 KMR samples tested within the acceptable range <10. While inconsistent as to a correlation between days from manufacture and the PV value, the trendlines do suggest that higher PVs occur as the product ages through its shelf life.



As this is meant to be a brief update, there are other longer discussions on ewildagain.org on the subject of rancidity – what is it, how to detect it, and strategies to prevent it (or at least slow its progression). See the [Formula and Feeding section](#) of the website for the following info shown at right.

Rancidity in powdered milk products. Users of milk replacer powders assume milk powders are fresh, especially when used prior to the expiration date – and most are. However, since milk powders contain fats that can spoil, it is possible for the fats to become rancid. While important for the milk powders to be stored correctly both prior to and after opening, it is still important to check them when opening the package. This section describes rancidity, testing, and results of eating any rancid foods, including formula. And yes, a few milk powders have been rancid. Learn how to check the milk powders and review lab test results.

- [Rancidity overview](#)
- [The sniff test](#)
- [Wildlife eating rancid food](#)