

## **PROBLEM: RAPID PEROXIDE VALUE INCREASE AFTER DEODORIZATION**

**问题：脱臭后过氧化值快速增加**

### **Possible Causes and Corrective Action**

可能引起的原因和改进的方法

(1) Dirty laboratory glassware—All laboratory utensils must be rinsed with distilled water to remove all traces of soap or detergent.

实验室脏的玻璃器具—所有实验室器具必须用蒸馏水冲洗以去除所有痕量的皂或清洁剂。

(2) Light exposure—The deleterious effects of light exposure upon the flavor stability of edible oils is well known. Only limited exposure of the oil to sunlight or ultraviolet rays from florescent lightening will increase the peroxide value of the oil and impart off-flavors. Samples from any process should be protected from the light to ensure a representative analysis of the product. Clear glass or plastic containers should not be used to sample oils in process.

曝光量—众所周知食用油暴露在光线中会损害其风味稳定性。少量的阳光或紫外线照射油就会增加其过氧化值产生异味。过程中样品要避光以保证分析到有代表性的样品。透明的玻璃或塑料容器不要用在加工过程的样品油中。

- (3) Washed tanks—Process tanks must be clear water rinsed, neutralized, and sweetened with an oil rinse after washing.

清洗油罐—加工过程中油罐必须用清水冲洗，高压清洗，水洗后用油洗。

- (4) Chelating acid addition—30 to 50 ppm citric acid or 10 ppm phosphoric should be added in the deodorizer cooling tray to chelate metals. The absence of the acid addition may be due to a broken addition line, a clogged addition line, an empty acid supply tank, incorrect preparation of the acid solution, someone shutting off the system, or something similar.

添加螯合剂—30 到 50ppm 柠檬酸或 10ppm 磷酸在脱臭冷却时添加以螯合金属离子。酸添加量的不足可能是由于添加线的损坏，阻塞，储罐酸用完，不正确的酸溶液预处理，有人关闭了该系统或类似情况。

- (5) Deodorizer discharge temperature—Rapid oxidation of deodorized oils must be avoided by controlling the oil temperature in the cooling stage before exposure to the atmosphere. Liquid oils, high in polyunsaturates should be cooled from 100 to 120F (38 to 49C). Higher deodorizer discharge temperatures are necessary for higher melting products but should be maintained as low as possible. The speed of oxidation is doubled with each 27F (15C) increase in temperature within the 70 to 140F (20 to 60C) interval.

脱臭出料温度—脱色油必须在接触大气前控制冷却温度来避免脱色油快速氧化。含高不饱和脂肪酸的液体油应冷却至 100 到 120F (38 到 49C)。

对高熔点的产品需高脱臭出料温度但要尽可能低。温度在 70 到 140F (20 到 60C)，温度每提高 27F (15C) 氧化速度提高一倍。

- (6) Secondary oxidation—The immediate batch may be salvaged by rebleaching with bleaching earth followed by redeodorization; however, the source of the abuse should be identified to prevent a reoccurrence with subsequent production.

二次氧化—产品可通过用白土重脱色接着重脱臭来挽回；但无论如何必须查明原因以防止以后再次发生。

- (7) Air incorporation—Repair pumps or other sources of air incorporation after deodorization.

与空气结合—修理泵或检查脱臭后与空气结合的其它来源。

- (8) Polymerized oil buildup—Peroxide value increase can be caused by a buildup of polymerized or oxidized oil, which mixes with the oil in process. The corrective action is to wash the deodorizer. To prevent these problems from occurring, a regular wash-out schedule should be established. It should be standard procedure to wash the deodorizer each 6 months if it is not operated continuously 7 days a week or if the operation is subject to power failures. Otherwise, deodorizers should not be operated more than 12 months without a thorough wash-out.

油聚合物的形成—过氧化值升高能形成油聚合物或产生油的氧化，加工时混于油中。改进方法是清洗脱臭塔。为防止这些问题发生需确定定期的清洗时间表。如果不是一星期7天连续操作或操作时功率不够，标准的程序是每6个月清洗脱臭塔。否则没有一个彻底的清洗，脱臭操作不能超过12个月。

(9) Prior oxidation—It is very important that oxidation be prevented during all stages of edible fats and oils processing due to the detrimental effects upon the finished deodorized oils. For example, it has been estimated that a peroxide value increase of only 1.2meq/kg in neutralized soybean oil after refining may reduce the oxidative stability of the deodorized oil by 50%. Oxidation during processing can be minimized by avoiding contact with air, elimination of prooxidant metallic contaminants, nitrogen protection at all stages of processing, and/or addition of antioxidants at the initial stages of processing.

食用油脂在所有加工步骤防止氧化对成品脱臭油是非常重要的。例如精炼过的中和豆油过氧化值提高 1.2meq/kg，脱臭油的氧化稳定性降低 50%。

加工过程中可通过避免和空气接触，去除金属氧化污染物，全过程氮气保护，或在加工初期加抗氧化剂使加工过程氧化降到最小。