PALM-BASED BAKERY RELEASE AGENT

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Bakery release agent is widely used for bakery and confectionary applications. Its main function is to help release bakery products from the mould after production. Traditionally, release agents used in bakeries are mainly made of fats or oils (animal or vegetable) and in the recent years, certain additives such as lecithin, silica and cereal flour are used to improve the performance of the bakery release agents. MPOB has successfully developed palm-based bakery release agent. Two palm-based release agents were formulated *i.e.* water-free release agent and oil-in-water (O/W) type of release agent.

TECHNOLOGY OFFERED

The technology offered is palm-based bakery release agent formulation. Two bakery release agents (water-free type and O/W type) have been formulated for different bakery products. Water-free type release agent is suitable for bakery products which require high performance release agent whereas the O/W type can be used for bakery products with easy mould release requirement.

INGREDIENT AND PROCESSING

The water-free palm-based bakery release agent was formulated with palm super olein and other ingredients such as Carnauba wax, lecithin and PGPR. The O/W type release agent was formulated with palm olein, rapeseed oil, lecithin, monoglyceride, *etc*. The process flow of palm-based O/W type release agent production is shown in *Figure 1*.

PRODUCT CHARACTERISTICS

The releasing ability is the most important factor for evaluating the bakery product's quality. The performance of the bakery products showed that the releasing ability was similar to that of the commercial sample (*Figure 2*).

No. 1: No release agent.

No. 2: O/W type release agent.

No. 3: Without water release agent.

No. 4: Commercial release agent.

Figure 2. Cake and mould after baking.

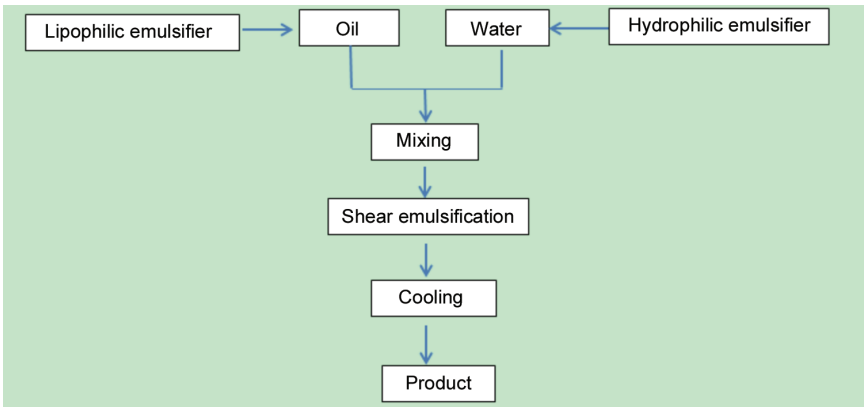

Figure 1. Process flow of palm-based O/W release agent.

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Figure 3. Palm-based water-free release agent and O/W release agent.

NOVELTY

The formulation is based on PMF from the fractionation process.

BENEFITS

- No *trans*-fat and animal fat.
- Enhanced oxidative stability.

MARKET POTENTIAL

In 2016, baking industry in China ranked second in the world with a size of RMB 252.82 billion, after the United States of America. The same time, China's baking industry grew rapidly in recent years with 13% growth rate recorded between 2011 to 2016. Breads and cakes account for 61% of all baked products which use release agent thus providing a huge potential market for these products.

TABLE 1. ESTIMATED EXPENDITURE AND ECONOMIC VALUES

Item	Value
Capital asset	RMB 600 000 (RM 368 000)
Benefit to cost ratio	1.22
Payback period, (yr)	3
Internal rate of return (IRR),%	48.23
Net present value (NPV)	RMB 1 301 670 (RM 799 325)
Return on investment (ROI),%	39.79

ECONOMIC EVALUATION

The investment required for the production of palm-based release agent is financially feasible as shown in *Table 1*. The estimated total investment is RMB 1 409 550 (RM 865 000) with a capital expenditure of approximately RMB 600 000 (RM 368 000). The investment will generate income of RMB 1 280 000 (RM 786 000) after three years.

CONCLUSION

Palm product is suitable for manufacturing of release agent. Palm-based release agents have an excellent release ability and better stability. Palm oil which is offered at a competitive price can replace canola oil or animal fats in the market as bakery release agent.

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