



**REDGEM<sup>®</sup>**

# **Proprietary Adsorbent to Mitigate 3MCPDE & GE**



**SUNWIN**  
INSIGHTS THAT WORK





**Unique, proprietary formulation of natural minerals and carbon**

## About Us

SUMWIN GLOBAL is an innovative technology company with a proven track record in R&D commercialisation. The company offers sustainable products and services which deliver outstanding value propositions to the market.

## What is REDGEM®?

REDGEM® is a unique, proprietary formulation of natural minerals and carbon, which acts as a direct replacement for bleaching earths/ clay in edible oil refining and other applications.

REDGEM® is comparable in price to other bleaching earths but offers many additional advantages, most notably, a significant reduction in the pre-cursors of 3MCPDE and GE. This leads to major cost savings overall, as expensive additional processes are normally required to reduce the precursors of 3MCPDE and GE to meet EFSA Standards.

## How was REDGEM® Developed?

In 2016, the EFSA produced its first guidelines on 3MCPDE and GE levels considered safe for human consumption.

In response, the Malaysian Palm Oil Board (MPOB) initiated a call for technology companies to find a cost-effective solution to solve the problem of 3MCPDE and GE in edible oils.

SUMWIN rose to the challenge and put its state of the art technical resources into finding a solution and REDGEM® was created and patented as a result.

REDGEM® was developed as part of a unique process solution which Sumwin has patented to mitigate 3MCPDE and GE in refined oils. REDGEM® not only bleaches, but also removes pre-cursors of 3MCPDE and GE.

## REDGEM® Advantages



**Reduces pre-cursors of 3MCPDE and GE**



**Significant reduction in metals like Phosphorus & Iron.**



**Lower Oil loss in spent earth**



**Switching to REDGEM® does not require any capital expenditure & existing bleaching facilities can be used.**



**REDGEM® reduces 3MCPDE by 2-3ppm more than other bleaching clays**



**Comparable price to alternative bleaching earths but has increased functionality.**



**1:1 direct replacement for other clays or earth**

# Typical case study in Palm Oil Refinery

**Crude CPO Without Washing**

CPO		
No	Parameter	Values
1	FFA	3.64%
2	Color	21R/21Y
3	Dobi	2.17
4	Chloride	6.2 ppm

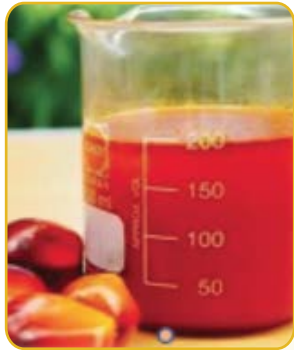
**Bleaching Followed by Refining**



**RBDPO**



**Normal Bleaching Earth**



**No Chloride washing during this study for CPO**

**REDGEM® Special Additive**

**Bleached with REDGEM®**

Better results with REDGEM® even with lower dosage & no compromise in throughput

Achieved 3MCPDE less than 1ppm without chloride washing for CPO

Increased throughput by 20% and still managed to get 3MCPDE 0.97ppm in single refining

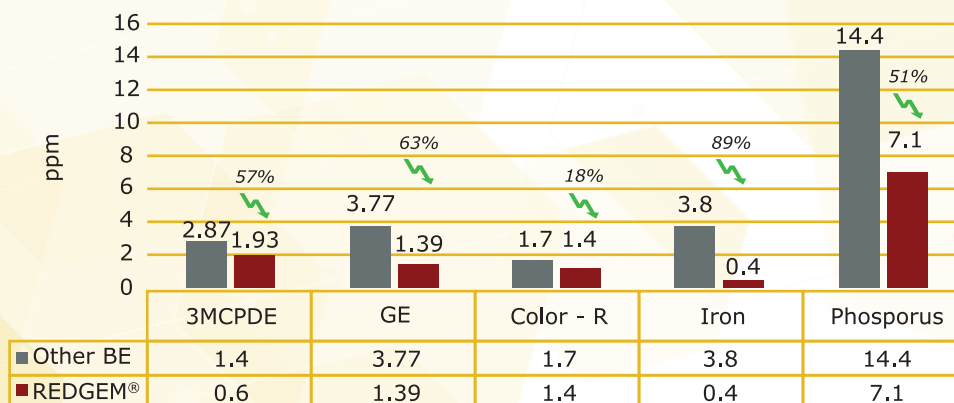
## RBDPO QUALITY COMPARISON

No	Parameter	Normal BE	REDGEM	REDGEM
1	Dosage %	2.5	2.5	2.2
2	FFA %	0.05	0.045	0.05
3	PV (meg/kg)	0.3	0.3	0.3
4	Color	1.7R	1.4R	1.5R
5	3MCPDE (ppm)	1.4	0.6	0.66
6	GE - 1st pass	4.88	3.75	4.18
7	GE - 2nd pass	0.95	0.95	0.95
8	OSI@110 C (Hrs)	25	27.5	27.4

\*The results are from an actual study done on full scale plant in a big multinational palm oil refinery.

\*Photos are used for illustration purposes only.

## Compilation of RBDPO Quality Parameters from Major Refineries Around the World





# A cost-effective direct replacement for existing bleaching earths.

## FAQs

### What is REDGEM®?

REDGEM® is a cost-effective direct replacement for existing bleaching earths, with the added advantage of reducing 3MCPDE and GE in refined vegetable oils by 2-3ppm.

### What are REDGEM's benefits?

REDGEM® reduces both 3MCPDE and GE by 2-3ppm, while simultaneously reducing oil loss in spent earth. It enables refineries to reach the high standards required for baby/infant food, for a much lower cost and higher functionality, comparative to alternatives in the market.

### Does REDGEM® meet FEDIOL requirements?

FEDIOL is a federation representing the European Vegetable Oil and Proteinmeal industry in Europe and the FEDIOL Code of Practice seeks to ensure that products meet food safety, customer, and quality requirements. REDGEM conforms to the guidelines of FEDIOL to ensure that these standards are met.

### What certifications does REDGEM® have?

REDGEM® has all the necessary certifications for use in food safety and edible oil refining, including ISO 22000, HACCP, as well as Halal and Kosher certifications.

### How is spent REDGEM® disposed of?

Spent REDGEM® can be disposed of in exactly the same way as any other spent bleaching earth.

### Is technical support available?

Yes, SUMWIN has full technical and commercial support available in all key markets.



Download REDGEM®  
Brochure



Visit SUMWIN  
Website



Visit SUMWIN  
Europe Website



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