



REDGEM[®]

Proprietary Adsorbent to Mitigate 3MCPDE & GE



SUMWIN
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 act as a direct replacement for bleaching earth/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 pre-cursors of 3MCPDE and GE to meet EFSA standards.

Key Advantages

- **Reduces pre-cursors of 3MCPDE and GE, 2-3 PPM lower than other bleaching earth/clay**
- **Lower oil loss in spent earth**
- **Same or better RBDPO quality – colour and M&I**
- **No change required at bleaching plant, 1:1 direct replacement**
- **No CAPEX or OPEX required in switching to REDGEM, no additional requirements**
- **Comparable price to bleaching earth, but increased functionality.**

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.



A cost-effective direct replacement for existing bleaching earth

FAQS

What are REDGEM's benefits?

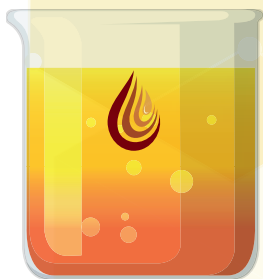
REDGEM gives a 2-3 PPM reduction in both 3MCPDE and GE as well as a reduction in oil loss in spent earth. It provides a cost-effective alternative to other bleaching clays/earth and enables refineries to reach the high standards required for baby/infant food for a much lower cost.

What grades of REDGEM are available?

Two grades of REDGEM are available:

REDGEM - a cost-effective direct replacement for existing bleaching earth with the added advantage of reducing 3MCPDE and GE in refined vegetable oils by 2-3 PPM.

REDGEM PLUS - this enhanced grade of REDGEM is specifically targeted at refineries that already have 3MCPDE and GE mitigation in place, but would like to achieve the more challenging standards for baby/infant food specification at a cost effective price.



↓ **3MCPDE**
↓ **GE**

What certifications does REDGEM have?

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

How is spent REDGEM disposed of?

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 from its offices around the world.





REDGEM[®]

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

**Lower oil loss
in spent earth**

**2-3 PPM lower
than other
bleaching
earth or clays**

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

Further Information:

www.sumwinglobal.com

SUMWIN EUROPE LTD

Office 0-2-6, The
Grainger Suite, Dobson
House, Regent Centre,
Newcastle upon Tyne,
NE3 3PF
United Kingdom

SUMWIN GLOBAL PTE. LTD

20 Upper Circular Road,
01-32 The Riverwalk,
Singapore.

SUMWIN SOLUTIONS INDIA

Nehru Road,
Vakola, Santacruz
(East), Mumbai,
Maharashtra,
India.

SUMWIN MALAYSIA

301, 3rd floor,
Bangunan Ang, No 1
Jalan Jeram, Taman
Tasek, 80200, Johor
Bahru, Johor, Malaysia.



SUMWIN • **INSIGHTS THAT WORK**