

SMOG Management

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Reducing SMOG to release cash

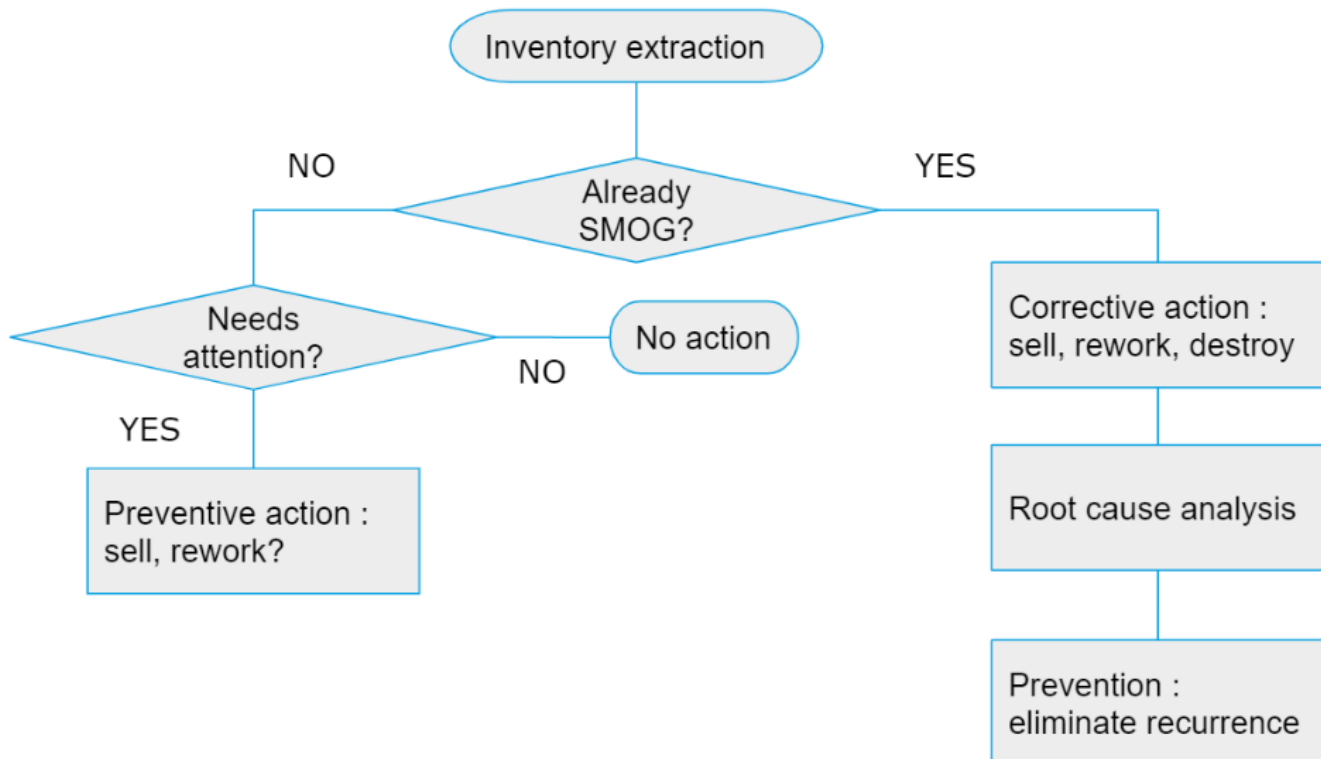
SMOG stands for Slow Moving Obsolete Goods and represents the unsold or expired inventory (incl. intermediates and raw materials). SMOG ties up cash because the goods have already been produced (raw material, energy and labor has already been paid). In the context of Solvay's efforts to be a best-in-class cash generation company, improving SMOG and therefore Working Capital is of the utmost importance. However, one-off SMOG reductions are not useful, so the true goal is to ensure sustainable SMOG reduction.

GBUs often have their own SMOG management, therefore this Wiki page aims at summarizing best practices and leveraging harmonized processes to ensure proper KPIs and governance are in place.

1. Principles & Definitions

1.1. Principles

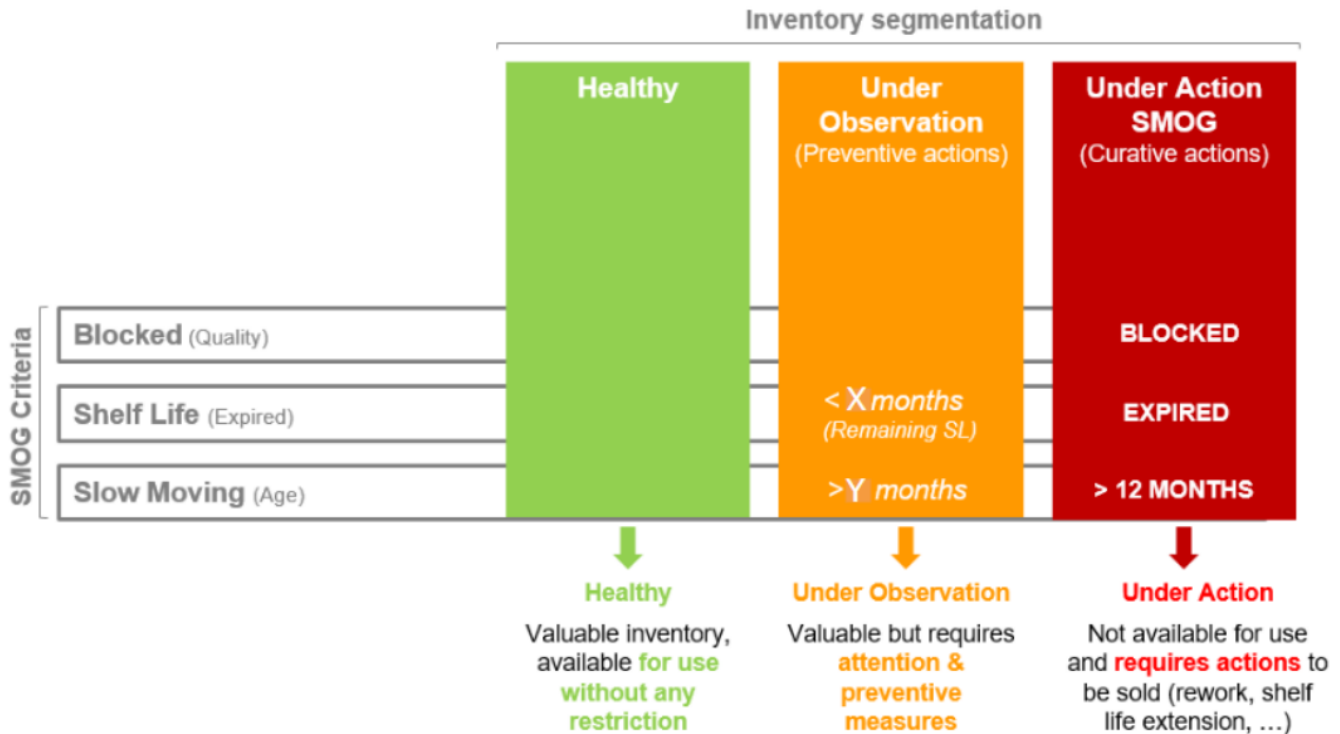
The basic principles of SMOG management can be summarized in the following decision chart:



1.2. Definitions*

SMOG, or Slow Moving, Off Grade & Obsolete Goods, are defined as finished goods, intermediates and raw materials that are blocked or restricted for further use/sale because they are off-grade (quality), and/or are obsolete (expired shelf-life) and/or have been in the inventory for over 12 months (slow-moving).

**Please note that in Q1'23, the group definition of SMOG was updated: SMOG now includes only obsolete and slow moving goods and excludes blocked items.*



“Inventory actions” aim to reduce existing SMOG inventory, or to prevent existing inventory from becoming SMOG. Inventory that is “Under observation” is at risk of becoming SMOG and therefore needs attention. Inventory that is “Under action” is already SMOG and needs corrective action to avoid being scrapped.

“Recurrence actions” aim to eliminate or reduce the root causes of SMOG generation. These will ensure sustainable SMOG reduction.

SMOG are split into 3 main categories, which have different levels of priority to avoid double counting:

1. **Blocked** (quality): the “Stock type” of the batch is one of the following:
 - a. Blocked Stock
 - b. Blocked Stock return
 - c. Restricted Use
2. **Obsolete** (expired): batch expiration is in the past (note: for each month, the last calendar day is used)
3. **Slow Moving** (old): Batch Manufacturing dates (for finished & semi-finished goods) or Last Good Receipts dates (for raw materials and trading goods) older than 12 months (note: for each month, the last calendar day is used)

**Please be aware that following group definition update of SMOG in Q1'23, blocked category is not anymore available in the IVT tool. Consequently, SMOG is calculated with the following level of priority: Obsolete > Slow Moving.*

Definitive SMOG data (value and quantity) are uploaded to the IVT on D+7. The reason behind the update on D+7 is to avoid significant pricing mistakes which have been seen to happen until D+6.

In order to make the data available sooner, the following rule was updated :

- on D+3 load M-1 quantities multiplied by M-2 prices to have a rough estimation of smog of past month to initiate actions.
- on D+7 load M-1 quantities multiplied by M-1 prices to have the real picture

SMOG will impact the Working Capital of a company and therefore its cash.

GBU-specific definitions can co-exist (particularly if a stricter time period is chosen - e.g. 9 months), but should be referred to as “SMOG+” to avoid confusion with the Group definition.

Line items in the inventory extraction refer to the cross section of: plant x material x batch information.

2. How to Keep track of SMOG and improve it?

As SMOG impacts Group results and needs to be reported homogeneously, there are a certain number of rules and definitions that need to be included in the GBU SMOG management procedure:

- Definition of an “under observation” category
- Thresholds for triggering inventory and recurrence actions
 - A good practice is to start with plant/material pivot table analysis and analyze the “tail” if significant to detect trends
- Roles and Responsibilities (R&R) for the process steps
- The harmonized list of categories for the Root Causes should be used (see below)
- The SMOG procedure should reference the GBU’s write-off process, including:
 - Main steps
 - Reference to finance procedure
 - Harmonized rules within the GBU

The below table shows the different steps for SMOG management. GBUs are expected to have implemented at least the “Basic level” described in the table.

Step	Basic level	Intermediate level	Advanced level
Identification of SMOG items to be reviewed	Monthly BW extraction sent to relevant parties	Automatic extraction	Automatic extraction feeding SMOG action tool
Monthly review of “inventory” actions	Log and track actions at entity level (site, product line...) using Google sheet or similar	Consolidated log and tracking at GBU level using Google Sheet or similar	Consolidated log and tracking at GBU level using SMOG action tool
Identification of root causes of SMOG generation	Log root causes at entity level (site, product line...) using Google sheet or similar	Consolidated log at GBU level using Google Sheet or similar	Consolidated log at GBU level using SMOG action tool
Monthly review of “recurrence” actions	Log and track actions at entity level (site, product line...) using Google sheet or similar	Consolidated log and tracking at GBU level using Google Sheet or similar	Consolidated log and tracking at GBU level using SMOG action tool

List of Root Cause categories:

In case several categories apply, the primary root cause should be applied.

Rigidity (campaign size, batch size vs MOQ)
Inaccurate MRP data / wrong stock strategy
FIFO Not respected
Change of spec / process / packaging
Canceled order / agreed customer return without complaint
Forecast accuracy
New Product Introduction
End of Life Product
Strategic decision*
By-product / process waste
Storage tank heel
Other

3. KPIs linked to SMOG

As **SMOG** is a **lagging KPI**,

Two types of leading KPIs can be followed:

- Process-related KPIs : % of items with late actions, with actions not defined, with no root cause identified...
- Root cause-related KPIs, which will often be GBU- and/or site-specific. For example, if a main root cause is the poor capability of a manufacturing process, a leading KPI could be the capability of the process (Ppk). If a main root cause is batch size vs MOQ, a leading indicator could be % of materials whose inventory strategy / MOQ / batch size have been reviewed and updated.

The amount of scrapped SMOG could also be tracked as a lagging KPI, to monitor our performance not only in terms of reaching the target, but of how we reach it.

The following table summarizes the main KPIs that should be tracked and the level of maturity. GBU's are expected to track and maintain at least the basic level.

Descriptions	Basic level	Intermediate level	Advanced level
Lagging KPI	SMOG target*	Scrapped SMOG for information	
Leading KPI - Written-off SMOG		Write-off provision for information	
Leading KPI - process	• "Under observation" without target • Evolution of "IN / OUT" SMOG w/o target • % of items w/o action or with late action • % of items w/o root cause	Average time in SMOG	
Leading KPI - actual root causes	Pareto for information	Action plan for main root causes	Leading KPI linked to main root causes with action plans

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