

# LIVE WEBINAR

## CHEMICAL LEASING:

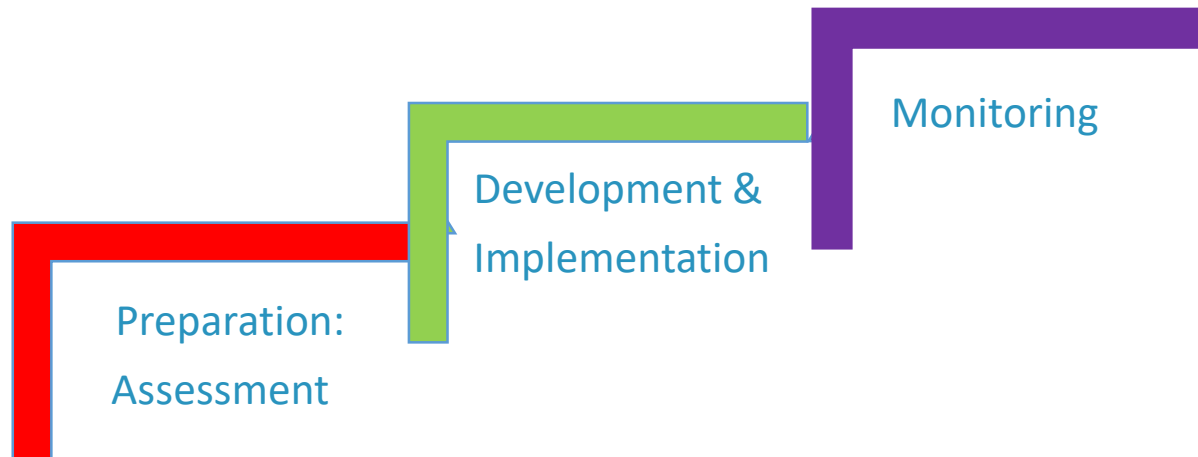
- STEP BY STEP APPROACH FOR THE IMPLEMENTATION OF THE MODEL, CHEMICAL LEASING TOOLKIT



Vojislavka Šatrić, Chemical Leasing expert

## Step by Step Approach for the Implementation of Chemical Leasing

- (1) Preparation: Assessment of company's potential** for optimizing the use of chemicals;
- (2) Development and implementation** of the Chemical Leasing business model together with a chemicals supplier and other potential partners;
- (3) Evaluation and monitoring** of the results.



## STEP 1. Preparation: Assessment of company's potential for optimizing the use of chemicals

**Task 1** – Identification of potential chemicals and processes

**Task 2** - Pre-assessment of the chemicals and processes

**Task 3** - Unit of payment pre-definition

## STEP 1. Task 1. Identification of Potential Chemicals and Processes



Metal processing (different kind of oils)



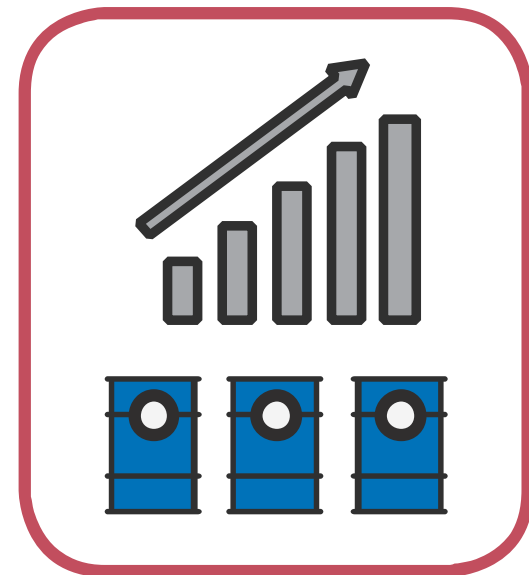
Metal parts cleaning

## STEP 1. Task 2. Pre-assessment of the Chemicals and Processes

### Process - Metal Parts Cleaning

Situation before Chemical Leasing:

- **High solvent consumption**
- Frequent change of the solvent
- **High waste generation**
- The quality of cleaning decreased considerably in the course of the week
- **High maintenance costs**





## STEP 1. Task 3. Unit of Payment Pre-definition



## STEP 2. Development and Implementation of the Chemical Leasing Business Model

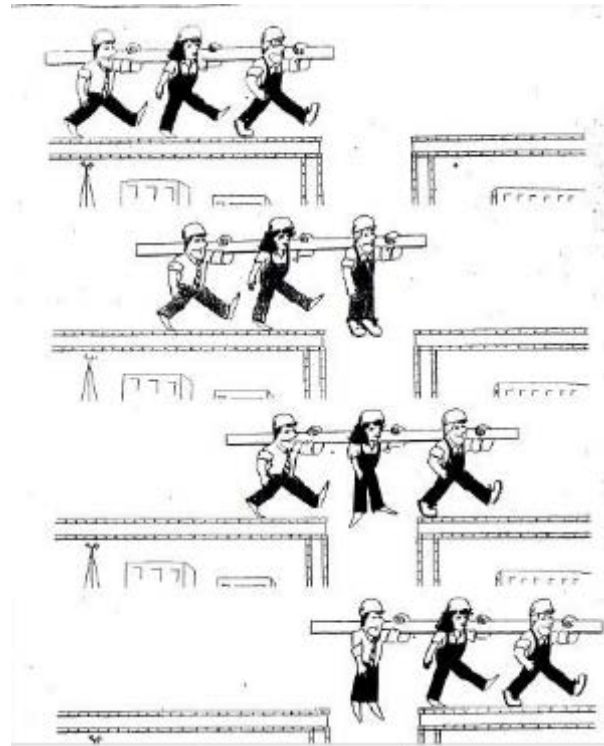
- Task 4 – Creation of an internal working group
- Task 5 – Establishment of a core Chemical Leasing team
- Task 6 – Collection of data and baseline definition
- Task 7 – Definition of measures to optimize chemicals use and processes
- Task 8 – Testing of identified options
- Task 9 – Chemical Leasing contract

## STEP 2. Task 4. Creation of an Internal Working Group

### The Most Important – Management Commitment

Internal team should involve:

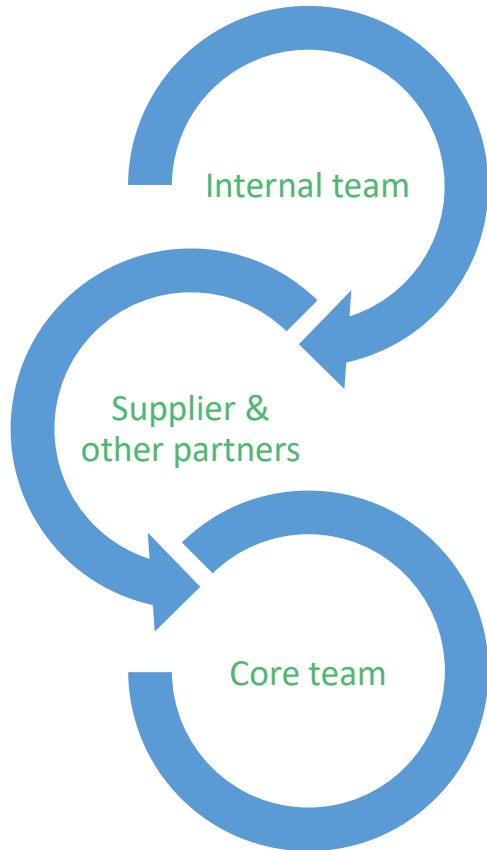
- Purchase department
- Production
- Quality assurance
- R&D
- Financial department
- Legal department



**This team is the driving force for change.**



## STEP 2. Task 5. Establishment of a Core Chemical Leasing Team



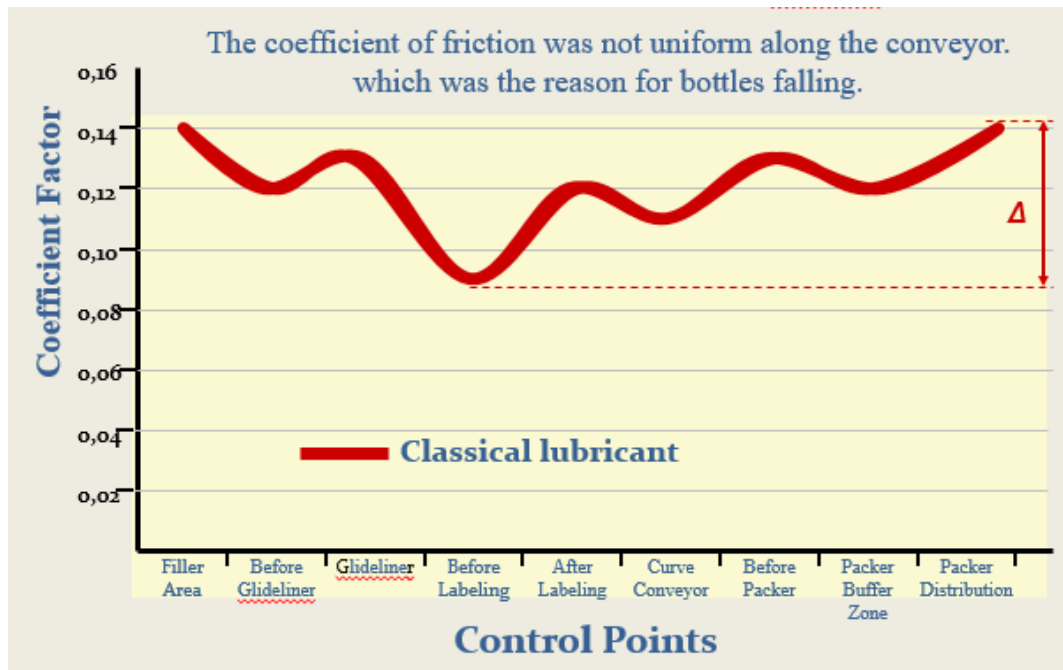
- Identify ideas for the potential substitution of chemicals and/or process optimization.
- Assess potential impacts on quality, investments, costs, etc.

### Elaboration of a work plan that includes:

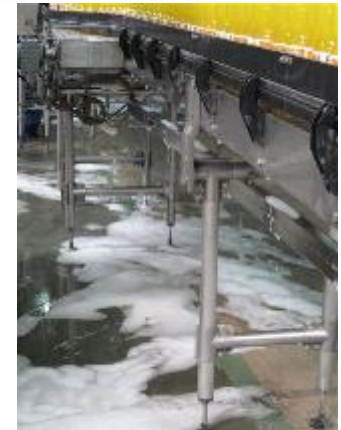
- Define the scope of the required testing.
- Prepare and sign a letter of intent to address the confidentiality, costs and liability of subsequent tasks.
- Establish a detailed time schedule and allocate tasks.

## STEP 2. Task 6. Data Collection and Baseline Definition

Depends on company – some have very good data but in some cases it is a lot of work to estimate consumption of resources (material, chemicals, energy water) and identify process parameters.



Estimation of chemicals based on total consumption.



## STEP 2. Task 6. Data Collection and Baseline Definition

PRODUCT	PLAZMA, 600 gr.		
	Without adhesive	With adhesive	Adhesive (gr.)
1	55.93	56.58	0.75
2	55.83	56.64	0.81
3	56.1	56.81	0.71
4	56.17	56.88	0.71
5	56.14	56.82	0.68
6	56.16	56.88	0.72
7	56.15	56.9	0.75
8	55.93	56.79	0.86
9	56.06	56.94	0.88
10	55.54	56.46	0.92

MACHINE	BAMBIPAK 2
	Temperature (0C)
PARAMETERS	
(zatečeni)	t hose 1 = 140
	t hose 2 = 140
	t nozzle 1 = 145
	T nozzle 2 = <b>142</b>
	t tank = 135
	pressure 2.5 bar



## STEP 2. Task 6. Data Collection and Baseline Definition





## STEP 2. Task 6. Data Collection and Baseline Definition

### Baseline - Indicators

Economic indicators	Environmental indicators	Health and safety indicators
<p>Costs for materials, energy, water, waste-water treatment, waste management, etc.</p>	<p><u>Input:</u>            Chemical consumption            Water consumption            Energy consumption            Waste water generation            Waste generation            Air emissions            Pollution intensity</p>	<p>Accidents related to the handling of chemicals            Adverse health effects in workers from chemical exposure</p>



## STEP 2. Task 7. Definition of Measures to Optimize Chemical Use and Processes

**Different optimization measures may be defined in cooperation with the supplier.**

- Optimization of current chemicals use.
- Chemical substitution and/or process optimization through efficient process parameters, equipment improvements and/or equipment change.

## STEP 2. Task 8. Testing of Identified Option(s)

The design and plan for the testing should be defined by the core Chemical Leasing team and should take the following into consideration:

**Costs:** The team needs to decide who will cover the costs. Sharing of costs between the chemical user and supplier is recommended.

**Liability:** It is recommended to set-up a first agreement defining who is responsible for the testing and results.

Occupational **health and safety requirements** need to be agreed upon.

**Technical specification** of chemicals should be respected by the supplier (i.e. melting point, viscosity).

## STEP 2. Task 8. Testing of Identified Option(s)

### Unit of Payment:

The testing should also cover the new unit of payment that was identified in Step 1.

This unit should now be **analysed and verified in practice**.

**Note:** *It has to be possible to measure, record and demonstrate units of payment.*

## STEP 2. Task 8. Testing of Identified Option(s)

**Note:** This task may be the most time consuming part of the Chemical Leasing implementation.



## STEP 2. Task 8. Testing of Identified Option(s)

**Note:** In some cases, testing is not possible before contract signing.

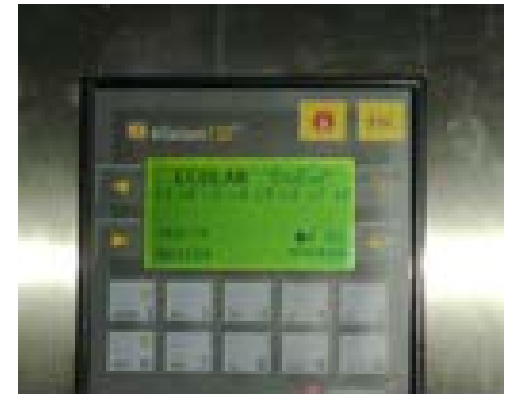




## STEP 2. Task 8. Testing of Identified Option(s)

At the end of the testing process, the companies should **agree on the price per unit of payment** and on **how to verify the number of units** to be paid.

In comparing the costs of traditional and Chemical Leasing business models (cost-benefit analysis), it is **important that the calculations are based on real costs related to chemicals use** (including costs for energy, water, etc.). Potential savings that can be achieved under Chemical Leasing should also be considered.



## STEP 2. Task 9. Chemical Leasing Contract

1. Scope of the contract (chemicals, processes, production line).
2. Required quality of the chemical(s) (technical specification to be included).
3. Chemical Leasing short definition.
4. Average consumption of chemicals per unit of payment and percentage of variation tolerance (deviation from agreed amount of chemicals consumed) acceptable to all parties, if applicable.
5. Unit of payment.
6. Price per unit of payment.
7. Terms of payment.
8. Way of verifying the number of units to be paid.

## STEP 2. Task 9. Chemical Leasing Contract

9. **Liability** (e.g. for damages to the site, quality problems with the manufacturers' products, health or environmental impacts) and warranty.
10. **Obligations of the chemical user** (i.e. compliance with process parameters, as specified by a supplier; reporting to a supplier of any significant variations in the process parameters that may influence consumption; maintenance of records and documenting of the number of payment units as the basis for payment; refraining from using other chemical brands on the line; appointment of a person responsible for monitoring the line operation and informing the supplier of any modification or situation requiring the supplier's attention).
11. **Obligations of the chemical supplier** (i.e. provision of technical specifications and application instructions; fulfilment of required chemical quality; provision of Safety Data Sheets; industrial testing and necessary adjustments for optimal application; specification of process parameters for optimal consumption; training of the staff; installation of additional equipment; work on further consumption optimization in line with new development, regular service).
12. **Waste and emissions management** (legal compliance must be assured).
13. **Cost sharing of potential investments** (recommended).

## STEP 2. Task 9. Chemical Leasing Contract

14. **Confidentiality** (covering any technical ownership or other confidential business information of which the parties to the Contract become aware).
15. Publication and utilization of results.
16. Contract duration and termination (including possible probation period).
17. **Contract modifications** (e.g. price changes).
18. Conflict resolution.
19. Applicable law.
20. **Monitoring**.

## STEP 3. Evaluation and Monitoring of the Results

Monitoring is in principle a continuous process that needs to be performed once a Chemical Leasing contract is established. It provides both partners with data on:

- The consumption of chemicals;
- The quality of the chemicals (e.g. whether in line with the specification);
- Process parameters;
- The quality of process outputs (e.g. the cleanness of metal parts or the efficiency of the lubrication process);
- Data on maintenance (important in some cases.)

Monitoring results must be well documented and communicated between the partners as they might form the basis for later contract modifications.

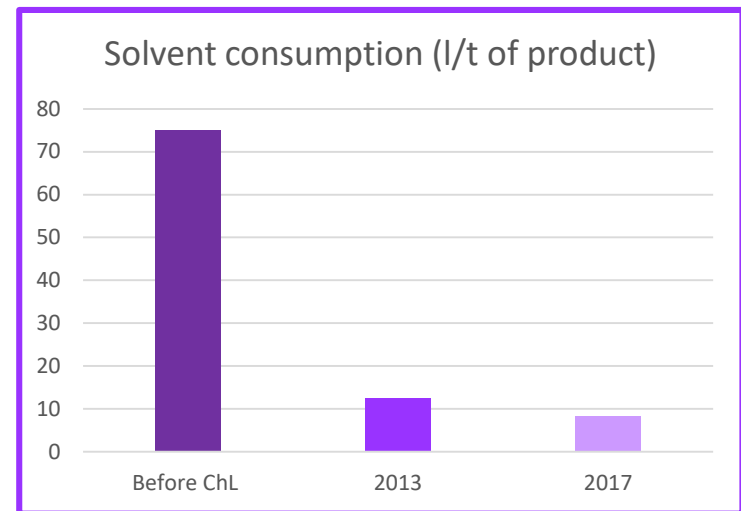


## STEP 3. Evaluation and Monitoring of the Results

The evaluation should **compare the baseline data** (before implementation of the Chemical Leasing model) **with current data** to assess real achievements.

The evaluation should answer the questions:

- What are the real savings achieved?
- Have the targets been met?
- Is there a need to modify the contract?



## STEP 3. Evaluation and Monitoring of the Results

With time - if the cooperation between the partners works well and the user's expectations are met regarding the costs, the results and the quality of the products and services - the user may decide to extend the model to other production lines and areas.



## STEP 3. Evaluation and Monitoring of the Results

The user can also decide to extend the model to other production lines and areas.



## Key Factors for Success

1. **Excellent experience and know-how of the chemicals supplier** is a pre-condition to provide value-added services and recommend chemical and/or process changes.
2. **The unit of payment should be clearly defined** and specified.
3. It must be **possible to measure and record** the unit(s) of payment.
4. **Quality standards** must be maintained at a high level.
5. Employees of the supplier and user need to **be committed to the new way** of cooperating.
6. The supplier and user should enjoy a relationship of **mutual trust**.
7. **Benefits should be shared fairly** between supplier and user.
8. **The legal agreement** between supplier and user should clearly define terms, such as quality technical specifications of chemicals, units of payment, price per unit of payment, terms of payment, the liability and responsibility of each party, etc.

# Thank you!

VOJISLAVKA ŠATRIĆ

International consultant of UNIDO  
Expert on sustainable chemicals  
management and Chemical Leasing

Email: [chemicalleasing@unido.org](mailto:chemicalleasing@unido.org)