

List of questions

1. To facilitate calculations, how is the best way to determine the unit of payment?

The unit of payment has to be measured, not calculated. It has to be possible to measure, record and demonstrate units of payment (User pays number of units to supplier).

2. Is Chemical Leasing only suitable for continuous processes? If not, can you indicate some suggestions for batch processes?

No, you can apply Chemical Leasing for discontinuous processes as well. Examples: Uses of pesticides in agriculture; Cleaning of floors in hotels; disinfection in hospitals.

3. Is Chemical Leasing more suitable for unit operations or unit processes also (reaction)?

Chemical Leasing is not suitable for processes where chemical reactions are involved (stoichiometric relation). It may be implemented on catalysts in specific cases.

4. Does Chemical Leasing need an expert in certain chemicals used? Safechem in the beginning only worked with Solvents.

Yes, the supplier of a chemical needs to have good knowledge about the application. But there is no need to be a top expert for a certain application, as typically a team between experienced people from the supplier and from the user is formed. This team has then the combined expertise that is required for further process optimization.

5. As a consultant, how can I incorporate Chemical Leasing to one of my services? Should I get a certificate from an accredited entity to gain more trust? How does a consultant become an active promoter of the Chemical Leasing concept? And how does the consultant help his clients apply Chemical Leasing in their projects?

It would be advisable to receive training either directly from UNIDO or from some of NCPCs that are experienced in this business model. You may ask for certificate of attendance. In order to become active promoter you should first understand the model and then find suitable companies/partners/processes for ChL application. Then, you should provide for baseline determination (current chemical consumption), see whether there is potential for consumption reduction and, in partnership with all parties, help to set-up unit of payment.

6. Based on which parameters do you analyze the risks of a chemical?

The Material Safety Data Sheet is a good source of information on chemical hazardous properties. Hazard Statements According to GHS - includes criteria for the classification of

health, physical and environmental hazards are compared

	Red Lead	Zinc Phosphate	Calcium Phosphate
Environmental and human health hazard	<p>H272 - May intensify fire; oxidiser</p> <p>H302 - Harmful if swallowed</p> <p>H332 - Harmful if inhaled</p> <p>H351 - Suspected of causing cancer</p> <p>H360 - May damage fertility or the unborn child</p> <p>H372 - Causes damage to organs through prolonged or repeated exposure</p> <p>H410 - Very toxic to aquatic life with long lasting effects</p>	<p>H 410 Very toxic to aquatic organisms with long lasting effects.</p> <p>Product is not hazardous for the human being when used properly (use of protective personal equipment).</p>	<p>Based on currently available data, this product does not meet the regulatory definition of a hazardous substance. However, good industrial hygiene practices should be used when handling.</p>

7. What data in MSDS do you refer to compare the toxicity of chemicals? Is it LD50 Values?
Yes, if we are talking only about toxicity.

8. Can you explain more about the SMART 5 tool?

The indicator checklist provides an overview of the five sustainability criteria for Chemical Leasing as well as of the sub-criteria and indicators. It shall support enterprise representatives and service providers to conduct a first assessment of the indicators of their Chemical Leasing project. This checklist can be used with other performance based business models.

There are 5 criteria:

1. Reduction of adverse impacts for environment, health, energy and resource consumption caused by chemicals and their application and production processes
2. No substitution of chemicals by substances with a higher risk
3. Improved handling and storage of chemicals to prevent and minimize risks
4. Economic and social benefits are generated; a contract should contain the objective of continuous improvements and should enable a fair and transparent sharing of the benefits between the partners
5. Monitoring of the improvements needs to be possible

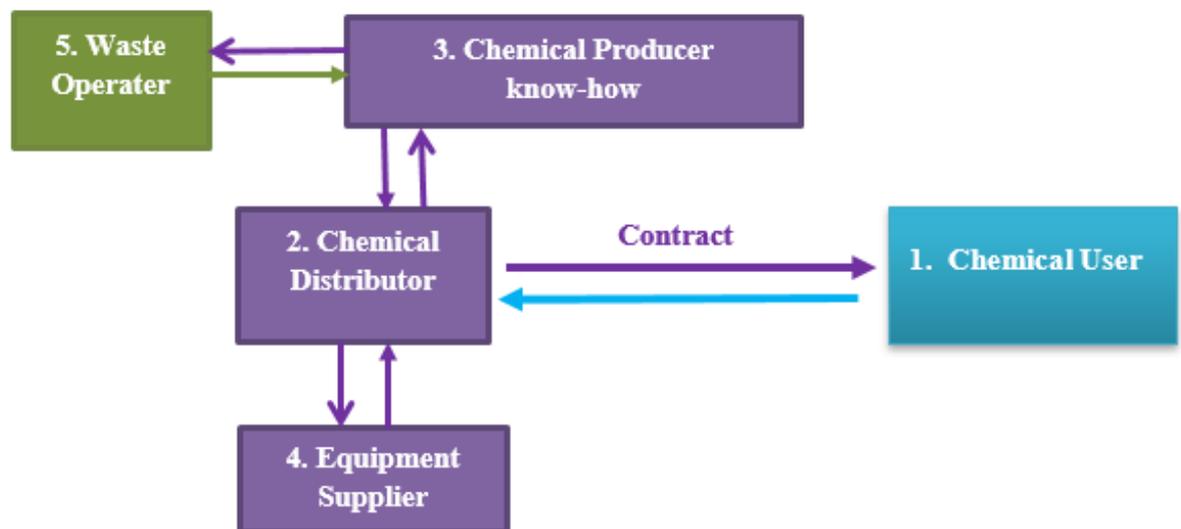
When applying to the Award, it is necessary to fill out the checklist and include figures when possible.

9. I want to implement the ChL model. How do I involve the chemical supplier in the case of being company and in the case of being consultant? If there is no supplier commitment, is the model not valid?

If there is no supplier commitment, Chemical Leasing is not possible to implement (Supplier should agree on selling function instead of volume).

In the case of consultant it would be good to be informed about existing cases; She/he should have knowledge on chemical and related process; should contact suppliers, present the model and propose its implementation (it would be good if it is supplier who already implement the model in some other country or region).

In the case of company, it should propose the model to its supplier first. Usually companies have several suppliers, so the model of cooperation might be offered to all of them



10. As we know the Chemical Leasing team consists of the supplier and the user. Could the recycling companies and equipment suppliers be part of a Chemical Leasing team? If yes, could you please explain their roles?

Yes, they can be part of the team and part of the business model. A recycling company can collect used chemicals and do a clean up before they are brought back to the supplier. In this way they contribute to the circular economy contribution of Chemical Leasing. An equipment provide can optimize his machine against the background of increased knowledge on the chemical and the application case which is generated in the Chemical Leasing team.

11. How is Chemical Leasing different from Green chemistry?

Green chemistry is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. Chemical Leasing is a performance based that shifts the focus from increasing sales volume of chemicals towards a value-added approach. The supplier sells the functions performed by the chemical and functional units are the main basis for payment.

- 12. I would like to know how do the management of the companies could be convinced that it makes good business sense to move away from being a company that lives from making a profit margin on every unit sold to become a company which sells less chemicals but still is more profitable. How do you pitch the idea of Chemical Leasing to customers and suppliers?**

Some of the main arguments for suppliers are: A supplier is in the medium and long run more profitable and has competitive advantages; Business relation are more stable; With Chemical Leasing you have less acquisition efforts; Various examples show that the business model generates a triple win situation; Some of the main arguments for users are: A user saves costs and becomes more profitable as well as more competitive; he can concentrate on his core business; risks of handling chemicals are reduced.

- 13. For example, how could this be message be conveyed to the producers and users of fertilizer. Here we have a serious problem (Eutrophication and Hypoxia) from the over application of fertilizer. With the right approach everybody could win; the producers by making more money even if they sell lower quantities, the farmers who don't buy unnecessary quantities and the environment which does not end up with fertilizer run off. See arguments above. You are right, fertilizers as well as pesticides are remarkably interesting fields. However, Chemical Leasing in these areas is a bit more complex as conditions in nature are not as stable as in industrial processes. Furthermore, in fertilizers you have to see on which point of the curve (for the relation amount of fertilizer – amount of yield) you are. Improved solutions might include an analysis of the soil to identify what is really needed.**

- 14. Any experience that Chemical traders have involved with Chemical Leasing?**

Yes, in the case of metal parts cleaning in Serbia, distributor of chemicals is involved.

- 15. Is there a cost for using Chemical Leasing concept/ support/ team as part of the workforce?**

There may be some cost related to deremining baseline and testing.

- 16. I work for Procter & Gamble and continuous improvement in our manufacturing sites and process optimization are intrinsic to us. What could be the benefit or difference of using the Chemical Leasing concept?**

In the core of ChL is collaboration, exchange of experience. Your partner will share his knowledge more openly with you as the unit of payment is changed and you will additionally improve your process optimization.

- 17. Do you have examples of consumer goods companies using Chemical Leasing?**

So far, no.

- 18. What were some of the technical modifications done in the production lines for bottling and confectionary companies using Chemical Leasing?**

In bottling they introduced new equipment for supply of dry lubricant, and in the case of confectionary they introduced new glue, but they kept the same dosing equipment, if I am not mistaken.

19. Could you apply a similar concept of selling a service vs. product to consumers? Can Chemical Leasing be applied for this too?

As previously said, we have no example of ChL applied to selling of consumer goods, but in principle, it is possible.

20. I'm startup and I'm dealing with one certain supplier. How can I respond if he refused to deal with me based on Chemical Leasing concept, what should I do specially if I don't have many suppliers right now to switch between them and convince another one with the concept?

If in the current situation you just have one certain supplier that works with you some arguments to convince him about Chemical Leasing are: He increases his profit; He gets better knowledge on the processes and needs of his clients; He has better chances for long term business relations; He has a competitive advantage compared to suppliers with the classical business model; He has a chance to get his knowledge paid;

21. Regarding the application to the award, projects may start now but by December no tangible results may be achieved. So can we still apply using expected results based on current studies and the projects are in progress?

Companies and individuals can apply and present the early results obtained during the period of implementation. You can also present projections of the results based on the early results of the implementation or expected from the innovation or research.

22. My startup is still in Research and development phase and we don't enter the market yet but we have a potential customer, can we apply for the Chemical Leasing award? We produce an environmentally friendly product

Yes, it is possible to apply. However, you need to present a clear link to Chemical Leasing or performance based. Also, you need to include all important information to back up your application.

23. Are there any incentives available for Chemical Leasing for any specific sectors? Countries? Targets? How is Chemical Leasing tied to the SDGs?

UNIDO has supported companies all over the world through the Global Chemical Leasing Programme through capacity building, technical assistance and promotion. Other example is the support governments of Austria and Switzerland that covers part of the technical assistance to implement chemical leasing.

Chemical Leasing contributes to SDG 12.4 that seeks to achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment. Chemical Leasing is an excellent tool to improve chemicals handling chemicals.