**Prilog 3. Projektni zadatak za nabavu naziva:**

**Izrada projektne dokumentacije**

Predmet nabave:

* Izrada projektne dokumentacije za modernizaciju tehnologije Proizvodnje metil estera s obradom UCO ulja i modifikacija tehnologije uvođenjem **natrijevog metanolata kapaciteta 2.500 kg/sat (+/- 5%)**.
* Omjer obrade UCO ulja treba biti **minimalno 30%** u odnosu na kapacitet pogona od 2.500 kg/sat **(+/- 5%)**.
* Projektna rješenja izvedbe potrebno je prilagoditi postojećem postrojenju s maksimalnim korištenjem postojeće opreme.
* Izlazni proizvod FAME mora udovoljavati parametrima kvalitete navedenim u tehničkom standardu EN 14214 kako bi se proizvod mogao plasirati na tržište. Za sve norme i standarde omogućava se nuđenje jednakovrijednih.

U nastavku su općeprihvaćeni standardi koji trebaju biti zadovoljeni kako bi proizvod mogli plasirati na tržište.

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| --- |
| ***Parameters of output frito oil*** |
|  *Acid number* | *mgKOH/g* | *5 /max.10/* |
| *Size of mechanical impurities* | *µm* | *max. 0,055* |
| *Water content* *Phosphorus content* | *%**ppm* | *max. 0,05**max. 10* |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Property*** | ***Units*** | ***lower limit*** | ***upper limit*** | ***Test-Method*** |
| [*Ester*](https://en.wikipedia.org/wiki/Ester)*content* | *% (m/m)* | *96.5* | *-* | [*EN 14103*](https://en.wikipedia.org/w/index.php?title=EN_14103&action=edit&redlink=1) |
| [*Density*](https://en.wikipedia.org/wiki/Density) *at 15°C* | *kg/m³* | *860* | *900* | [*EN ISO 3675*](https://en.wikipedia.org/w/index.php?title=EN_ISO_3675&action=edit&redlink=1)*/*[*EN ISO 12185*](https://en.wikipedia.org/w/index.php?title=EN_ISO_12185&action=edit&redlink=1)*/*[*EN12185*](https://en.wikipedia.org/w/index.php?title=EN12185&action=edit&redlink=1)*.* |
| [*Viscosity*](https://en.wikipedia.org/wiki/Viscosity)*at 40°C* | *mm²/s* | *3.5* | *5.0* | [*EN ISO 3104*](https://en.wikipedia.org/w/index.php?title=EN_ISO_3104&action=edit&redlink=1)*/*[*EN 14105*](https://en.wikipedia.org/w/index.php?title=EN_14105&action=edit&redlink=1) |
| [*Flash point*](https://en.wikipedia.org/wiki/Flash_point) | *°C* | *> 101* | *-* | [*EN ISO 2719*](https://en.wikipedia.org/w/index.php?title=EN_ISO_2719&action=edit&redlink=1)*/*[*EN ISO 3679*](https://en.wikipedia.org/w/index.php?title=EN_ISO_3679&action=edit&redlink=1)*.* |
| [*Sulfur*](https://en.wikipedia.org/wiki/Sulfur)*content* | *mg/kg* | *-* | *10* | *-*[*EN ISO 20846*](https://en.wikipedia.org/w/index.php?title=EN_ISO_20846&action=edit&redlink=1)*/*[*EN ISO 20884*](https://en.wikipedia.org/w/index.php?title=EN_ISO_20884&action=edit&redlink=1)*.* |
| [*Cetane number*](https://en.wikipedia.org/wiki/Cetane_number) | *-* | *51,0* | *-* | [*EN ISO 5165*](https://en.wikipedia.org/w/index.php?title=EN_ISO_5165&action=edit&redlink=1) |
| [*Sulfated*](https://en.wikipedia.org/wiki/Sulfate)[*ash*](https://en.wikipedia.org/wiki/Volcanic_ash)*content* | *% (m/m)* | *-* | *0,02* | [*ISO 3987*](https://en.wikipedia.org/w/index.php?title=ISO_3987&action=edit&redlink=1) |
| [*Water*](https://en.wikipedia.org/wiki/Water)*content* | *mg/kg* | *-* | *500* | [*EN ISO 12937*](https://en.wikipedia.org/w/index.php?title=EN_ISO_12937&action=edit&redlink=1) |
| *Total contamination* | *mg/kg* | *-* | *24* | [*EN 12662*](https://en.wikipedia.org/w/index.php?title=EN_12662&action=edit&redlink=1) |
| [*Copper band*](https://en.wikipedia.org/wiki/Copper_band)[*corrosion*](https://en.wikipedia.org/wiki/Corrosion)*(3 hours at 50 °C)* | *rating* | *Class 1* | *Class 1* | [*EN ISO 2160*](https://en.wikipedia.org/w/index.php?title=EN_ISO_2160&action=edit&redlink=1) |
| [*Oxidation*](https://en.wikipedia.org/wiki/Oxidation)[*stability*](https://en.wikipedia.org/wiki/Chemical_stability)*, 110°C* | *hours* | *8*[*[1]*](https://en.wikipedia.org/wiki/EN_14214#cite_note-1) | *-* | [*EN 14112*](https://en.wikipedia.org/w/index.php?title=EN_14112&action=edit&redlink=1) |
| [*Acid value*](https://en.wikipedia.org/wiki/Acid_value) | *mg KOH/g* | *-* | *0,5* | [*EN 14104*](https://en.wikipedia.org/w/index.php?title=EN_14104&action=edit&redlink=1) |
| [*Iodine value*](https://en.wikipedia.org/wiki/Iodine_value) | *-* | *-* | *120* | [*EN 14111*](https://en.wikipedia.org/w/index.php?title=EN_14111&action=edit&redlink=1) |
| [*Linolenic Acid*](https://en.wikipedia.org/wiki/Alpha-Linolenic_acid)[*Methylester*](https://en.wikipedia.org/wiki/Methylester) | *% (m/m)* | *-* | *12* | [*EN 14103*](https://en.wikipedia.org/w/index.php?title=EN_14103&action=edit&redlink=1) |
| [*Polyunsaturated*](https://en.wikipedia.org/wiki/Polyunsaturated)*(>= 4*[*Double bonds*](https://en.wikipedia.org/wiki/Double_bond)*)*[*Methylester*](https://en.wikipedia.org/wiki/Methylester) | *% (m/m)* | *-* | *1* | [*EN 14103*](https://en.wikipedia.org/w/index.php?title=EN_14103&action=edit&redlink=1) |
| [*Methanol*](https://en.wikipedia.org/wiki/Methanol)*content* | *% (m/m)* | *-* | *0,2* | [*EN 14110*](https://en.wikipedia.org/w/index.php?title=EN_14110&action=edit&redlink=1) |
| [*Monoglyceride*](https://en.wikipedia.org/wiki/Monoglyceride)*content* | *% (m/m)* | *-* | *0,7* | [*EN 14105*](https://en.wikipedia.org/w/index.php?title=EN_14105&action=edit&redlink=1) |
| [*Diglyceride*](https://en.wikipedia.org/wiki/Diglyceride)*content* | *% (m/m)* | *-* | *0,2* | *EN 14105* |
| [*Triglyceride*](https://en.wikipedia.org/wiki/Triglyceride)*content* | *% (m/m)* | *-* | *0,2* | *EN 14105* |
| [*Free Glycerine*](https://en.wikipedia.org/wiki/Free_glycerine) | *% (m/m)* | *-* | *0,02* | *EN 14105 /*[*EN 14106*](https://en.wikipedia.org/w/index.php?title=EN_14106&action=edit&redlink=1) |
| *Total*[*Glycerine*](https://en.wikipedia.org/wiki/Glycerine) | *% (m/m)* | *-* | *0,25* | *EN 14105* |
| *Group I metals (Na+K)* | *mg/kg* | *-* | *5* | [*EN 14108*](https://en.wikipedia.org/w/index.php?title=EN_14108&action=edit&redlink=1)*/*[*EN 14109*](https://en.wikipedia.org/w/index.php?title=EN_14109&action=edit&redlink=1)*/ EN 14538* |
| *Group II metals (Ca+Mg)* | *mg/kg* | *-* | *5* | [*EN 14538*](https://en.wikipedia.org/w/index.php?title=EN_14538&action=edit&redlink=1) |
| [*Phosphorus*](https://en.wikipedia.org/wiki/Phosphorus)*content* | *mg/kg* | *-* | *4* | *EN14107* |

* Projektna dokumentacija mora obuhvatiti snimku postojećeg stanja, glavne projekte i projekte izvedenog stanja.
* Projektna dokumentacija se sastoji od sljedećih dijelova:
* Geodetska snimka postojećeg stanja prostora postrojenja
* Skeniranje 3D skenerom i izrada detaljne snimke prostora postrojenja
* Izrada građevinskih, strojarskih, elektroenergetskih projekata i projekta upravljanja postojećeg stanja
* Modifikacija za UCO ("Frito ulje") - Procesni (tehnološki), strojarski dio i elektroinstalacije
* Implementacija natrijeva metoksida u proces proizvodnje - Procesni (tehnološki), strojarski dio i elektroinstalacija
* Glavni strojarsko - tehnološki projekt strojarske opreme za proces proizvodnje MEBU i pomoćne sustave MEBU
* Glavni strojarski projekt cjevovoda za proces proizvodnje MEBU i pomoćne sustave MEBU
* Izrada 3D modela novog postrojenja
* Izvedbeni strojarski projekt cjevovoda za proces proizvodnje MEBU
* Izvedbeni strojarski projekt cjevovoda za pomoćne sustave MEBU
* Izrada Glavnih, Izvedbenih i projekata Izvedenog stanja elektroenergetskih projekata
* Izrada Glavnih, Izvedbenih i projekta Izvedenog stanja Instrumentacije i MUR-a
* Izrada Glavnog, Izvedbenog i projekta Izvedenog stanja vatrodojave
* Izrada Glavnog, Izvedbenog i projekta Izvedenog stanja strojarskog projekta instalacija za zaštitu od požara
* Elaborat zaštite na radu
* Elaborat zaštite od požara
* Elaborat zona opasnosti za pomoćne sustave i za proizvodni objekt