fssai

RUCO

Repurpose Used Cooking Oil

इस्तेमाल किये तेल से

हरित इंधन

स्वास्थ्य

बायोडीज़ल

पर्यावरण

Table of Contents

Introduction

A) Used Cooking Oil in India

Food Business Operators (FBOs) often use same cooking oil for repeated frying. The consumption of Used Cooking Oil (UCO) poses adverse health effects since polar compounds are formed during frying. These compounds are associated with several diseases such as hypertension, atherosclerosis, Alzheimer's disease, liver diseases amongst others. Used cooking oil is either not discarded at all or disposed of in an environmentally hazardous manner choking drains and sewerage systems. Also, UCO from organised Food Business Operators reportedly finds its way to small restaurants / dhabas and road-side vendors.

B) National Policy on Biofuels 2018

As per the National Policy on Biofuels -2018, 'Biofuels' are fuels produced from renewable resources and used in place of or in blend with, diesel, petrol or other fossil fuels for transport, stationary, portable and other applications. The major thrust of this policy is to ensure availability of biofuels from indigenous feedstock. The policy further defines 'biodiesel' as a biofuel produced from non-edible vegetable oils, acid oil, used cooking oil (UCO)or animal fat and bio-oil. The policy sets an indicative target of 5% blending of biodiesel in diesel is proposed by 2030.

Recognizing that UCO is a potential feedstock for biodiesel and the cornerstone of this supply chain mechanism, FSSAI is implementing an Education, Enforcement and Ecosystem (EEE) strategy to divert UCO from the food value chain and curb current illegal practices.

Structure of Vegetable Oil Market in India:

India is one of the leading consumers of vegetable oil in India. At present, 2466 crore litres of vegetable oil in consumed in the country.

Consumption	Crore Litres	Percentage
Total Veg Oil	2,466.67	100%
Commercial	986.67	40%
Household	1,480.00	60%

The source of the oil consumed is as follows:

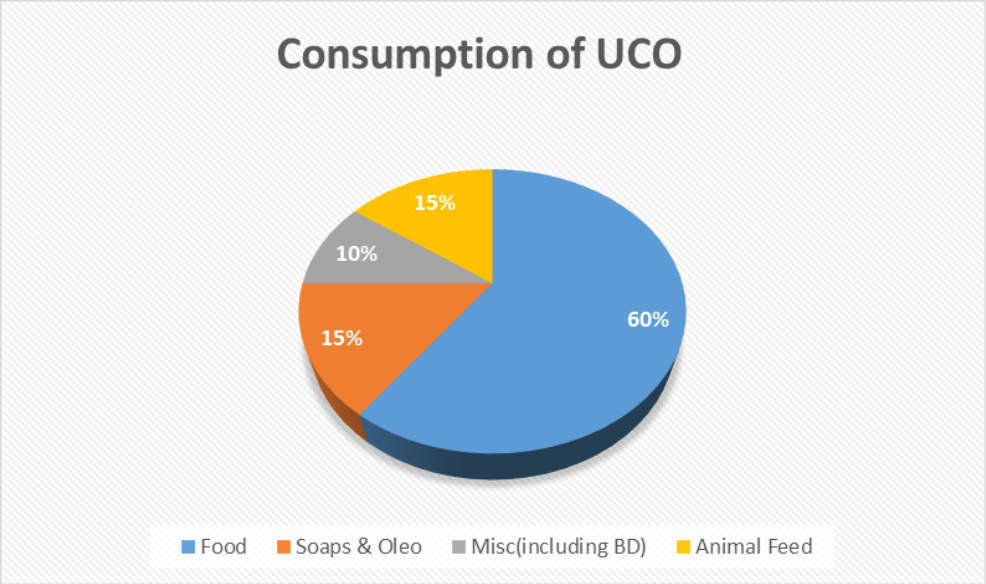
Source	Crore Litres
Import	1,666.67
Domestic	800.00

Considering the above figures the following is the potential availability of Used Cooking Oil from household as well as commercial sources:

Source	Availability (crore litres)	Potential % generation
UCO commercial	**148.00**	**15%**
UCO household	**74.00**	**5%**
Total	**222**	

The current consumption trend of UCO is as follows:

Present Consumption of UCO(in Cr Lit)		
Food	133.20	60%
Soaps & Oleo	33.30	15%
Misc(including biodiesel)	22.20	10%
Animal Feed	33.30	15%
Total	222.00	100%



*Source for all data: Biodiesel Association of India(BDAI)

Projections: Biodiesel from UCO

In 2018-19, 8.2 crore litres of biodiesel was procured by OMCs for blending with about 6 crore litres from imported palm stearin and 2.2 crore litres from Used Cooking Oil and other feedstock. This constituted just 0.133% of High Speed Diesel against the 5% target.

The current consumption of High Speed Diesel (HSD) in the country is 84 MMT or 102 MKL, and it is projected to increase to 132.3 MKL by 2022. At 5% blending level, 660 crore litres of biodiesel would be needed. About 225 crore litres of waste-edible oil based feedstock (188 crore litres UCO and 36 crore litres acid oil / fatty acids) could be available for biodiesel processors.

Used Cooking Oil based biodiesel has a potential to contribute to over 10% of the target of Rs. 100,000 crore of import substation on petroleum products by 2024. It can potentially replace or supplement palm stearin as feedstock in 3 years and in 5 years' time the biodiesel manufactured can be equivalent to ethanol produced.

Implementation Framework

As part of its EEE (Education, Enforcement and Ecosystem) strategy to divert UCO from the food value chain and curb current illegal practices, the following steps have been undertaken by FSSAI till date:

- Notified the limit for Total Polar Compounds (TPC) to be maximum 25% beyond which the vegetable oil is not suitable for use. These standards have come into force from 1st July 2018. The gazette notification is placed at Annexure I.
- Issued an order directing FBOs with consumption of more than 50 litres of cooking oil per day to mandatorily maintain UCO disposal records has been issued. A copy of the same is placed at Annexure II.
- Launched, Repurpose Used Cooking Oil(RUCO), an ecosystem to enable the collection and conversion of used cooking oil to biodiesel.
- Constituted an Executive Committee to oversee the implementation of the RUCO ecosystem.

  Released guidelines (placed at Annexure III) for collection of UCO from FBOs by biodiesel processors on 6th June 2019. These include:
  - Authorization mechanism of biodiesel processors
  - Setting up of supply chain for collection of UCO
  - Provisional certification for aggregators by biodiesel processor
- Published guidance documents, tips for consumers and posters. It has also undertaken several awareness campaigns through its e-channels.
- Issued standardised test methods and developed a Standard Operating Procedure(SOP) to ensure safe handling and disposal of UCO by FBOs. The SOP outlines procedures to be followed for handling and disposal of UCO for households, small and large FBOs.
- Devised a microsite that serves as a resource hub and monitors the progress of the collection and conversion of UCO to biodiesel. (www.fssai.gov.in/ruco)

Way Forward

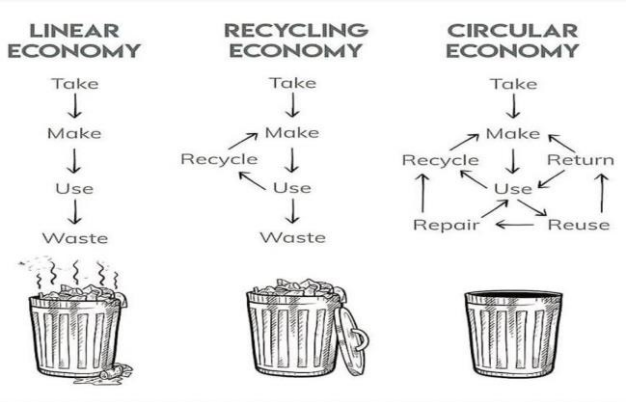
1) Set-up a robust mechanism to collect UCO from FBOs and begin enforcement.
2) Launch a track and trace app to ensure traceability across the supply chain.
3) Procure collection vehicles, 1 each for Ahmedabad, Bangalore, Bhubaneshwar, Delhi, Hyderabad, Jaipur and Mumbai.
4) Provide testing equipment's to measure TPC to states
5) A joint nationwide campaign to create awareness about RUCO with MoPNG, PCRA, OMCs, BDAI, GAIL and other stakeholders.

Impact of RUCO

RUCO will help bring:

1) Health benefits by avoiding ill effects of UCO
2) Employment generation and economic growth
3) Infrastructural investment in Rural Areas
4) Cleaner environment with reduced carbon footprint
5) Reduction of import dependency (Palm Stearin)

RUCO will also help promote a shift towards a circular economy model with health, environmental and economic benefits.



Annexure I

Gazette Notification

Press Note

Standards relating to total polar compounds in cooking oil

Food Safety and Standards Authority of India has notified the Food Safety and Standards (Licensing and Registration of Food Businesses) First Amendment Regulation, 2017 w.r.t quality of vegetable oil for repeated frying in the official gazette of India.

Repeated frying of oil leads to changes in physiochemical, nutritional and sensory properties of edible oil. Therefore, it is important to monitor quality of oil to avoid the use of degraded oil for cooking purposes. At present, there are general provisions in regulation to avoid re-use of cooking oil i.e. 're-heating and reuse of oil should be avoided as far as possible. Avoid using leftover oil wherever possible'.

This regulation prescribes the limit for Total Polar Compounds (TPC) to be maximum 25% beyond which the vegetable oil is not suitable for use.

These standards have been finalised after consideration of the comments received from stakeholders in this respect and shall come into force on 1st July, 2018.

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग III—खण्ड 4
PART III—Section 4
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 419] नई दिल्ली, मंगलवार, अक्तूबर 31, 2017/कार्तिक 9, 1939
No. 419] NEW DELHI, TUESDAY, OCTOBER 31, 2017/KARTIKA 9, 1939

स्वास्थ्य और परिवार कल्याण मंत्रालय

(भारतीय खाद्य सुरक्षा और मानक प्राधिकरण)

अधिसूचना

नई दिल्ली, 24 अक्टूबर, 2017

फा. सं. मानक/ओएंडएफ/अधिसूचना(6)/एफएसएसएआई-2017.—खाद्य सुरक्षा और मानक (खाद्य कारबार का अनुज्ञापन और रजिस्ट्रीकरण) संशोधन विनियम, 2017 का प्रारूप खाद्य सुरक्षा और मानक अधिनियम, 2006 (2006 का 34) की धारा 92 की उपधारा (1) की अपेक्षानुसार भारतीय खाद्य सुरक्षा और मानक प्राधिकरण की अधिसूचना फा. सं. मानक/ओएंडएफ/अधिसूचना(6)/एफएसएसएआई-2017, तारीख 23 मार्च, 2017, द्वारा भारत के राजपत्र असाधारण, भाग III, खंड 4, में प्रकाशित किया गया था जिसमें उन व्यक्तियों से जिनके उससे प्रभावित होने की संभावना थी, उस तारीख से जिसको उक्त अधिसूचना वाले राजपत्र की प्रतियाँ जनता को उपलब्ध करा दी गयी थी, तीस दिन की अवधि की समाप्ति के पूर्व आक्षेप और सुझाव आमंत्रित किए गए थे;

और उक्त राजपत्र की प्रतियाँ जनता को 31 मार्च, 2017, को उपलब्ध करा दी गई थी;

और भारतीय खाद्य सुरक्षा और मानक प्राधिकरण द्वारा उक्त प्रारूप विनियमों के संबंध में जनता से प्राप्त आक्षेपों और सुझावों पर विचार कर लिया गया है;

अत: अब, भारतीय खाद्य सुरक्षा और मानक प्राधिकरण, खाद्य सुरक्षा और मानक अधिनियम, 2006 की धारा92 की उप-धारा (2) केखंड (ण) के साथ पठित धारा 16, द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, खाद्य सुरक्षा और मानक (खाद्य कारबार का अनुज्ञापन और रजिस्ट्रीकरण), 2011 का और संशोधन करने के लिए निम्नलिखित विनियम बनाता है, अर्थात् :—

विनियम

1. संक्षिप्त नाम और प्रारंभ— (1) इन विनियमों का संक्षिप्त नाम खाद्य सुरक्षा और मानक (खाद्य कारबार का अनुज्ञापन और रजिस्ट्रीकरण) पहला संशोधन विनियम, 2017 है।

(2) ये विनियम 1 जुलाई, 2018 को प्रवृत होंगे।

2. खाद्य सुरक्षा और मानक (खाद्य कारबार का अनुज्ञापन और रजिस्ट्रीकरण) विनियम,2011 की अनुसूची 4 के भाग–V, के पेरा-VI, के उप-पेरा 7 में, फ्राई किए गए खाद्य, खंड (घ) में निम्नलिखित शब्द और अंक अन्तः स्थापित किए जाएंगे, अर्थात्—

"तथापि, ऐसे वनस्पति तेल का, जिसमें कुल पोलर कम्पाऊन्ड 25 प्रतिशत से अधिक विकसित हो गया है, उपयोग नहीं किया जाएगा।"

पवन अग्रवाल, मुख्य कार्यकारी अधिकारी

[विज्ञापन- III/4/असा./288/17]

टिप्पण: मूल विनियम भारत के राजपत्र, असाधारण भाग III, खंड 4, में अधिसूचना सं. 2-15015/30/2010, तारीख 1 अगस्त, 2011 द्वारा प्रकाशित किए गए थे और तत्पश्चात निम्नलिखित अधिसूचनाओं द्वारा उनका संशोधन किया गया:

(i) एफ. सं. 2-15015/30/2012, तारीख 10 जून, 2014; तथा

(ii) एफ. सं. 2-15015/30/2012, तारीख 13 जुलाई, 2016।

MINISTRY OF HEALTH AND FAMILY WELFARE

(Food Safety and Standards Authority of India)

NOTIFICATION

New Delhi, the 24th October, 2017

F. No. Stds/O&F/Notification(6)/FSSAI-2017.— Whereas draft of the Food Safety and Standards (Licensing and Registration of Food Businesses) Amendment Regulations, 2017, were published as required under sub-section (1) of section 92 of the Food Safety and Standards Act, 2006 (34 of 2006) vide notification of the Food Safety and Standards Authority of India number F. No. Stds/O&F/Notification(6)/FSSAI-2017, dated 23rd March, 2017 in the gazette of India, Extraordinary, Part-III, Section 4, inviting objections and suggestions from the persons likely to be affected thereby before the expiry of the period of thirty days from the date on which the copies of the Official Gazette in which this notifaction is published are made available to the public;

And whereas objections and suggestions received from the public in respect of the said draft regulations have been considered by the Food Safety and Standards Authority of India;

Now, therefore, in exercise of the powers conferred by clause (o) of sub-section (2) of section 92 read with section 31 of the said Act, the Food Safety and Standards Authority of India hereby makes the following regulations to amend the Food Safety and Standards (Licensing and Registration of Food Businesses) Regulations, 2011, namely:—

Regulations

1. **Short title and commencement.**— (1) These regulations may be called the Food Safety and Standards (Licensing and Registration of Food Businesses) First Amendment Regulations, 2017.

(2) These regulations shall come into force on 1st July, 2018.

2. In the Food Safety and Standards (Licensing and Registration of Food Businesses) Regulations, 2011, in Schedule 4, in Part-V, in paragraph VI, in sub-paragraph 7 relating to Fried Foods, in clause (4) , the following word and figure shall be inserted, namely—

"However, vegetable oil having developed Total Polar Compound more than 25% shall not be used.".

PAWAN AGARWAL, Chief Executive Officer

[ADVT-III/4/Exty./288/17]

Note : The principal regulations were published in the Gazette of India, Extraordinary, Part III, Section 4, *vide* notification number F. No. 2-15015/30/2010, dated the 1st August, 2011 and subsequently amended *vide* notification numbers:

i) F. No. 2-15015/30/2012, dated the 10th June, 2014; and

ii) F. No. 2-15015/30/2012, dated the 13th July, 2016.

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and Published by the Controller of Publications, Delhi-110054.

ALOK KUMAR Digitally signed by ALOK KUMAR Date: 2017.11.02 15:57:07 +05'30'

Annexure II

Directions

F.No. 1-2/ Stds/O&F/ Notification n(II)/ FSSAI-2018

Food Safety and Standards Authority of India

(A statutory Authority under the Ministry of Health and Family Welfare, Govt. of India)

FDA Bhawan, Kotla Road, New Delhi-110002

Dated, the 30th January, 2019

Subject: Direction under Section 16 (5) of Food Safety and Standards Act, 2006 regarding disposal and collection of Used Cooking Oil (UCO)

Repeated frying of oil leads to changes in physiochemical, nutritional and sensory properties of edible oil. During frying Total Polar Compounds are formed in the oil which have adverse effects on health. In this regard, Food authority has notified Food Safety and Standards (Licensing and Registration) First Amendment Regulation, 2017 on 24th October, 2017 which prescribes the limit for Total Polar Compounds (TPC) to be maximum 25% beyond which the vegetable oil is not suitable for use.

2. To ensure that such used cooking oil is neither directly used in the food preparation nor re-enter food chain, it has been decided that all Food Business Operators whose consumption of edible oils for frying is more than 50 litres per day shall maintain the following records and dispose used cooking oil to agencies authorized by the Food Safety and Standards Authority of India or Commissioner of Food Safety of States/ UTs from time to time,

Date	Name of the Oil (e.g. Groundnut oil, Sunflower Oil)	Quantity of oil taken for frying	Quantity discarded at the end of the day	Date and mode of disposal of Used Cooking oil	Discarded oil Collected by (name of authorized agency)

3. Further, the cooking oil having developed Total Polar Compounds of more than 25% shall not be topped up with fresh oil.

4. In view of the above, food safety commissioners of all States/ UTs are hereby directed to initiate enforcement of the requirements mentioned at para 2 and 3 above with effect from 01.03.2019.

5. This issues with the approval of the Competent Authority in exercise of the power vested under Sections 16(5) of Food safety and Standards Act, 2006.

(Praveen Jargar)
Joint Director (Regulatory Compliance)

To

1. All Food Safety Commissioner.
2. All Food Business Operators.
3. All Central Designated Offices of FSSAI.

Copy for information to:

1. PPS to Chairperson, FSSAI
2. PS to CEO, FSSAI
3. All Directors, FSSAI

F. No. 1-2/Stds/O&F/Notification n (II)/FSSAI-2018
Food Safety and Standards Authority of India
Ministry of Health & Family Welfare
FDA Bhawan, Kotla Road, New Delhi– 110002

Dated, the 28th February 2019

Subject: Directions under Section 16(5) of Food Safety Standards Act, 2006 regarding disposal and collection of Used Cooking Oil (UCO).

Reference order of even number dated 30th January 2019 conveying the directions that the Food Business Operators whose consumption of edible oils for frying was more than 50 litres per day would maintain the usage records and dispose used cooking oil to agencies authorised by the Food Safety and Standards Authority of India or the Commissioner of Food Safety of States/UTs. This order was directed to be effective with effect from 01.03.2019.

2. In order to provide time to ensure adequate mechanisms for authorisation of agencies and collection of used cooking oil are in place, it has been decided to defer the implementation of the said order by three months i.e. 30.05.2019 and this would be effective from 1st June 2019.

3. This issues with the approval of the Competent Authority in exercise of the power vested under sections 16(5) of Food Safety and Standards Act, 2006.

(Sunil Bakshi)
Advisor (Regulations/Codex)

To

1. All Food Safety Commissioners
2. All Food Business Operators
3. All Central Designated Officers of FSSAI

Copy for information to:

1. PPS to Chairperson, FSSAI
2. PS TO CEO, FSSAI
3. All Divisional Heads, FSSAI

Annexure III

Guidelines for Collection of Used Cooking Oil

File No. Stds/O&F/Notification(11)/ FSSAI-2018

Food Safety and Standards Authority of India

(A Statutory Authority established under the Food Safety and Standards Act, 2006)

Regulatory Compliance Division

FDA Bhawan, Kotla Road, New Delhi – 110002

Dated, the 6th May, 2019

Order

Subject: Guidelines for collection of Used Cooking Oil(UCO) by Biodiesel Manufacturers from Food Business Operators through their authorized collection agencies.

Reference order of No. 1-2/Stds/O&F/Notification n(II)/FSSAI-2018 dated 30th January 2019 conveying the directions that the Food Business Operators whose consumption of edible oils for frying was more than 50 litres per day would maintain the usage records and would dispose used cooking oil to agencies authorised by the Food Safety and Standards Authority of India or Commissioner of Food safety of States/UTs from time to time. This order was directed to be effective with effect from 01.03.2019. Subsequently, this time line was extended for three months which is effective from 01.06.2019 vide order dated 28.02.2019.

2 Meanwhile an expert committee was constituted by FSSAI to devise a mechanism for enrolment of Biodiesel Manufacturers for collection of UCO. The Expert Committee had discussions and consultations with stakeholders including State Bio Fuel Boards, Bio Diesel Manufacturers etc. Based on the recommendations of the expert committee, the guidelines have been framed for collection of Used Cooking Oil(UCO) by Bio Diesel Manufacturers from Food Business Operators through their authorized collection agencies. The guidelines are enclosed.

3. This issues with the approval of the Competent Authority.

Encls: as above.

(Parveen Jargar)
Joint Director (Regulatory Compliance)

To

1. All Food Safety Commissioner
2. All Food Business Operators
3. All Central Designated Offices of FSSAI

Copy for information to:

1. PPS to Chairperson, FSSAI
2. PS TO CEO, FSSAI
3. All Divisional Heads, FSSAI

Guidelines for Collection of Used Cooking Oil from Food Business Operators by Biodiesel Manufacturers

1. The Biodiesel Manufacturers using Used Cooking Oil (UCO) as feedstock to manufacture Biodiesel and registered with any of the State/UTs as per clause (xiv) of the Gazette Notification dated 30th April, 2019 Vide No.- P-13039 (18)/1/2018-CC (P-26825) "Guidelines for sale of Biodiesel for blending with high speed diesel for transportation purposes-2019" issued by Ministry of Petroleum and Natural Gas, shall be deemed enrolled under RUCO Initiative and approved to collect UCO from Food Business Operators (FBOs).

2. Meanwhile, till the mechanism of registration of Biodiesel Manufacturers is devised at State/UTs level as notified by Ministry of Petroleum and Natural Gas, the Biodiesel Manufacturers may enroll themselves with FSSAI for collection of UCO from FBOs. For this purpose, they shall submit the following documents to FSSAI-

    a) License issued by Department of Industries and Commerce/District Industry Centre (DIC).
    b) Annual return for previous financial year
    c) An affidavit stating that the company is using UCO to manufacture Biodiesel.

    This provisional enrolment will be valid till the registration mechanism in States/UTs gets devised as per directions of Ministry of Petroleum and Natural Gas.

3. The aforementioned documents viz. DIC License, Annual Return and Affidavit shall be submitted by Biodiesel Manufacturer to Regulatory Compliance Division, FSSAI with a copy to State FDA/State Biofuel or Bioenergy Boards.

4. The Biodiesel Manufacturers shall authorize the collection agencies/aggregators for collection of UCO. It will be the responsibility of the Biodiesel Manufacturers to ensure that the UCO collected by such agencies does not go back into food value chain and is used for manufacture of biodiesel only.

5. The Biodiesel manufacturer would issue a Certificate to collection agencies/aggregators authorizing them to collect UCO with a copy to state FDA and FSSAI.

6. A directory of such agencies will be maintained by FSSAI which will be available on FSSAI web site.

7. The collection agencies may be enrolled with more than one Biodiesel Manufacturers.

8. The Collection agencies/aggregators will be required to carry a copy of the enrolment letter issued by FSSAI to Biodiesel Manufacturer and a copy of certificate

issued by the Biodiesel Manufacturer authorizing them to collect UCO and present the same to the FBO while collecting used cooking oil.

9. Quarterly returns shall be submitted by the biodiesel manufacturers to Regulatory Compliance Division, FSSAI with a copy to State FDA/State Biofuel or Bioenergy Boards so as to enable them to keep record and monitor their progress. The report shall have information regarding the quantity of UCO collected, date of collection, details of FBO from which UCO is collected, and quantity of biodiesel produced from UCO, name of collection agencies/aggregators and any other relevant information.

10. Once the biodiesel manufacturers are registered under States/UTs level as notified by Ministry of Petroleum and Natural Gas, they will not be required to enroll themselves with FSSAI. However, the Biodiesel manufacturers shall submit a copy of collection agencies/aggregator's Certificate authorizing them to collect UCO to State FDA and FSSAI so as to maintain the directory of collection agencies/aggregators.

Annexure IV

Installed Capacity of Biodiesel Plants

SR. No.	COMPANY NAME	BIODIESEL PLANT LOCATION	YEAR of establishment	Capacity TPD	Feedstock			
					Animal Fat	PFAD	RBD Palm Stearin	UCO
1	Kaleesuwari Refinery Private Limited	Andhra Pradesh	2008	300	N	Y	Y	Y
2	Bio Max	Andhra Pradesh	2009	450	N	Y	Y	Y
3	Emami Biotech Pvt Ltd	West Bengal	2009	300	N	Y	Y	Y
4	Universal Biofuels	Andhra Pradesh	2008	300	Y	Y	Y	Y
5	Khanda Biofuels Pvt Ltd	Hyderabad	2011	30	Y	N	Y	Y
6	Yantra Fintech Ltd	Chennai	2009	50	N	Y	Y	Y
7	Yamuna Bio Industries Ltd	Varoda	2015	100	N	Y	Y	Y
8	Unicon Fibro Chem Ltd	Silvassa	2015	50	N	Y	Y	Y
9	Rajputana Biofuels Ltd	Jaipur	2018	30	Y	N	Y	Y
10	Kotiar Biofuels Ltd	Abu Road, rajashtan	2019	500	N	N	Y	Y
11	Wash well	Bhilwara	2015	30	Y	Y	Y	Y
12	Kissan Agro Industries Ltd	Noida	2012	100	Y	Y	Y	Y
13	Monopoly Industries Ltd	Khopoli	2018	50	N	N	Y	Y
14	Green Fuels Pvt. Ltd	Bangalore	2012	10	N	N	Y	Y
15	BioD Industries Ltd	Bawal, Haryana	2019	100	Y	Y	Y	Y
16	Global	Panvel	2015	10	Y	Y	Y	Y
17	Al Noor	Muzaffarnagar	2015	10	Y	Y	Y	Y
18	Elite Oil Ltd	Kakinada	2018	50	Y	Y	Y	Y
19	Southern Biotech Ltd	Andhra Pradesh	2007	200	Y	Y	Y	Y
20	Southern Biotech Ltd	Andhra Pradesh	2010	30	Y	Y	Y	Y
21	Nova Biofuels P Ltd	Haryana	2008	30	Y	Y	Y	Y
22	Costal Energy	West Bengal	2008	100	N	Y	Y	Y
23	Plentifuel Ind. Pvt Ltd	Gujarat	2019	10	N	Y	Y	Y
24	others		2018	150				
	Pilot Plants/under Erection			**2,990.00**				
25	Indian Railways	West Bengal, Tamil Nadu, Raipur		50				
26	CREDA, CG Govt	Raipur	2008	3				
27	RIL(pilot plant)	Andhra Pradesh	2009	10				
28	Ruchi(Pilot Plant)	Gujarat	2012	10				
29	Munzer Bharat	New Mumbai	2019	10				
30	Kaleesuwari Refinery Private Limited	Tamil Nadu	2020	650				
31	Others	Across the Country	2021	500				
				1,233.00				

Annexure V

Publications for Consumer Awareness

Guidance Note No.: 06/2018

HANDLING AND DISPOSAL OF USED COOKING OIL

SUMMARY

The practice of reheating cooking oil or using the same cooking oil for frying is common. Cooking oil is often repeatedly used by topping it up with fresh oil. Generally, big food businesses involved in the manufacturing of fried foods dispose of their used cooking oil (UCO) for industrial purposes (soap manufacture, etc.) but sometimes it finds way to small food vendors at cheap prices. At household level or by road-side vendors, the UCO is discarded in an environmentally hazardous manner blocking the sewerage and drainage systems. Therefore, in order to safeguard public health, FSSAI has notified the limit of Total Polar compounds to be not more than 25% beyond which the oil is unsafe for human consumption. This guidance note outlines the Standard Operating Procedure (SOP) for safe handling and disposal of UCO for the benefit of consumers as well as small and big Food Business Operators (FBOs).

KEY TAKEAWAYS

- Avoid repeated use of cooking oil for frying.
- At household level, oil once used for frying foods should be filtered and may be used for curry preparation in order to make it economical.
- Used Cooking Oil should be consumed in a day or two. It should not be stored for longer period as the rate of deterioration is higher in used oil.
- Discard Cooking Oil when blue-grey smoke appears or tough foam is formed or oil becomes dark and murky or the consistency of oil changes.
- Discard cooking oil having developed Total Polar Compounds (TPC) of more than 25%.
- Do not dispose of the discarded oil in drains/sewerage systems.
- UCO should be discarded in an environment friendly way preferably by providing it to the authorized UCO aggregators/collection agencies.
- In order to dispose small quantities of used cooking oil at household level, mix the oil with an absorbent material such as sand or sawdust or used towel or paper towel or food scraps to avoid chances of spillage and then throw it away in dustbins.

This Guidance Note has been prepared by Ms. Aiman Zaidi, Technical Officer at FSSAI based on FSSAI Regulation and Standards. This note contains information collected and compiled by the author from various sources and does not have any force of law. Omissions and error, if any, can kindly be brought to our notice.

A. Introduction

Edible vegetable oils are used in frying of foods. During frying, the quality of oil deteriorates. Using the same oil repeatedly for frying leads to changes in the physico-chemical, nutritional and sensory properties of the oil. It also leads to the formation of Total Polar Compounds (TPC), which makes the oil, unfit for human consumption beyond certain limits. Reports have related these compounds to several diseases such as hypertension, atherosclerosis, Alzheimer's disease, liver disease etc.

The purpose of this guidance note is to outline proper means for handling and disposing of used oil in order to safeguard the environment and consumer health

B. Guidelines in Food Safety and Standards (Licensing and Registration of Food Businesses) Regulations, 2011

At present, following provisions in Schedule 4 Part V- Specific Hygienic and Sanitary Practices are to be followed by Food Business Operators engaged in catering/food service establishments:

S. No.	Provisions
01	Reuse of cooking oil should be avoided.
02	In case of reheating of oil, use maximum three times to avoid the formation of trans fat. It is ideal to use once, if possible.
03	Re-heating and reuse of oil should be avoided as far as possible. Avoid using leftover oil wherever possible.
04	The vegetable oil having developed Total Polar Compound more than 25% shall not be used

C. Disposal of UCO

At present, UCO is either not discarded at all or disposed of in an environmentally hazardous manner choking drains and sewerage systems. Also, UCO from organised Food Business Operators (FBO) reportedly finds its way to small restaurants/dhabas and road-side vendors which may lead to adverse health effects.

D. Procedures to be followed for handling and disposal of UCO

1. For small FBOs

- Do not use same oil for more than three times. It is ideal to use only once.
- Cooking oil should be filtered frequently to remove food particles.
- UCO should be disposed when blue-grey smoke appears or tough foam gets formed or oil becomes dark and murky or the consistency of oil changes. These are some of the indications that the quality of oil has deteriorated.
- Do not dispose of the discarded oil in drains/sewerage systems.
- UCO should be discarded in an environment friendly way preferably by providing it to the authorized UCO aggregators/collection agencies that are registered with authorized agencies such as States Biodiesel Boards, Biodiesel Association of India and other agencies nominated by state government to collect such oil for the manufacture of biodiesel or any other industrial purpose
- Keep UCO away from flame, gas cylinders etc.
- FBOs should refrain from buying UCO for manufacturing their foods products.

2. For big FBOs

- Cooking oils having developed Total Polar Compounds beyond the limit of 25% are hazardous waste. Discard such edible oil.
- Keep the discarded oil in a separate container once it is cooled. Keep headspace while filling. Always label the container to avoid cross contamination.
- Do not transfer hot oil to avoid chances of spilling and injury.
- Transfer the used cooking oil safely into the collecting drums provided by authorized collection agency.
- Keep used cooking oil away from flame, gas cylinders etc.
- UCO should be discarded in an environment friendly way preferably by providing it to the authorized UCO aggregators/collection agencies that are registered with authorized agencies such as States Biodiesel Boards, Biodiesel Association of India and other agencies nominated by state government.
- All Food Business Operators should train their staff responsible for handling and disposal of used cooking oil regarding procedures prescribed in this document
- All FBOs whose consumption of edible oils for frying is more than 50 Kg or litres per day shall maintain the following record:

Date	Name of the Oil	Quantity of oil used in frying	Quantity consumed at the end of the day	Quantity discarded at the end of the day	Mode and date of disposal of Used Cooking oil	Used Cooking oil Collected by (name of authorized agency)

3. For households

- At household level, oil once used for frying foods should be filtered and may be used for curry preparation in order to make it economical. Avoid using the same oil for frying.
- UCO should be disposed when blue-grey smoke appears or tough foam gets formed or oil becomes dark and murky or the consistency of oil changes. These are some of the indications of deteriorated quality of oil.
- Used Cooking Oil should be consumed in a day or two. It should not be stored for longer times as the rate of deterioration is higher in used oil.
- Do not refill the fresh oil container with UCO. Store it separately.
- In order to dispose small quantities of UCO, mix the oil with an absorbent material, such as sand or sawdust or used towel or paper towel or food scraps to avoid the chances of spillage and then throw it away in dustbins.

FSSAI Regulations

Food Safety and Standards (Licensing and Registration of Food Businesses) Regulation, 2011, Available at: *http://www.fssai.gov.in/home/fss-legislation/fss-regulations.html*(Accessed: 28 August 2018)

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2. University of Virginia (2014) '*Standard Operating Procedure: Used Oil Disposal*', 18th November, Available at: *https://www.fm.virginia.edu/docs/operations/SOP_UsedOilDisposal.pdf*(Accessed: 28 August 2018)

RUCO
Repurpose Used Cooking Oil

fssai
FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA
Inspiring Trust, Assuring Safe & Nutritious Food
Ministry of Health and Family Welfare, Government of India

Top 5 Tips for Frying

Use vegetable oils.

Fry at the lowest frying temperature. Oil should not give off smoke.

While frying, remove food particles frequently from the oil before they turn black.

Use a fryer or utensils made of material such as stainless steel.

Avoid iron pans to prevent unpleasant taste or odour.

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Ministry of Health and Family Welfare, Government of India

Use vegetable oils for frying.

Ideally, use cooking oil only once for frying.

Used frying oil can be filtered and reused once for making curries.

Avoid reusing cooking oil.

Guard your health.

Consume used frying oil within two days.

Fry at the lowest frying temperature. Oil should not give off smoke.

While frying, remove food particles frequently from the oil before they turn black.

Use a fryer or utensils made of material such as stainless steel for frying.

Avoid iron pans for frying to prevent unpleasant taste or odour.

RUCO
Repurpose Used Cooking Oil

fssai FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA
Inspiring Trust, Assuring Safe & Nutritious Food
Ministry of Health and Family Welfare, Government of India

How to correctly reuse cooking oil after frying

Ideally, use cooking oil only once for frying.

Used frying oil can be filtered and reused once for making curries.

Consume used cooking oil within two days.

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RUCO

Repurpose Used Cooking Oil

The consumption of Used Cooking Oil (UCO) poses adverse health effects since polar compounds are formed during frying. These compounds are associated with several diseases such as hypertension, atherosclerosis, Alzheimer's disease and liver diseases amongst others. Therefore, it is essential to monitor the quality of vegetable oils during frying.

Triple E Strategy

Food Business Operators (FBOs) often use the same cooking oil for repeated frying. Also, UCO from the FBOs reportedly finds its way to small restaurants, dhabas and roadside vendors.
Hence, in order to safeguard public health, FSSAI is implementing a EEE strategy – Education, Enforcement, Ecosystem to divert UCO from the food value chain and curb current illegal practices.

Education

- Guidance Note
- Posters
- SOP for safe handling and disposal of UCO by FBOs
- Tips for Consumers

Enforcement

- Notified regulations that limit TPC to max 25%
- Order to maintain UCO disposal records where consumption is greater than 50 litres per day

Ecosystem

- Repurpose Used Cooking Oil(RUCO) ecosystem to collect and convert UCO to biodiesel by authorised aggregators
- Microsite & app for tracebility
- Database of biodiesel plants & manufacturers

Implementation Plan

1. Expert committee to oversee the working of RUCO ecosystem
2. Authorised aggregators to facilitate collection of UCO from FBOs and transport it to biodiesel plants for conversion
3. Enforcement of FBOs for compliance

The RUCO Advantage

RUCO will help bring about environmentally sustainable development while contributing to energy security and climate change mitigation. Its multiple benefits include:

- Health Benefits
- Economic Growth
- Employment Generation
- Cleaner Environment
- Reduction of Import Dependency
- Infrastructural Investment in Rural Areas

Website: www.fssai.gov.in/ruco

Annexure VI

Media Coverage

THE HINDU

FSSAI imposes restrictions on reuse of oil in Coimbatore

Wilson Thomas
COIMBATORE, MAY 21, 2019 00:31 IST

Designated Officer of Food Safety and Standards Authority of India B. Vijayalalithambigai checking the oil used in a snack manufacturing unit in the city on Monday. | Photo Credit: **HANDOUT_E_MAIL**

Food business operators directed to keep a registry of daily use and disposal

Implementing its January circular, which imposed restrictions on the handling of reused cooking oil, the Food Safety and Standards Authority of India (FSSAI) has directed some of the food business operators (FBO) in Coimbatore to keep a registry of their daily use and disposal.

According to FSSAI officials, the new rule will apply to FBOs including restaurants and manufacturers of snacks and deep fried items that consume 50 litres or above of cooking oil for frying every day.

FSSAI Designated Officer in Coimbatore B. Vijayalalithambigai told *The Hindu*that some of the big restaurants and a few other FBOs, whose consumption of edible oil for frying is 50 litre and above, had been asked to maintain the registry.

"The registry should have details including the name of the edible oil used for cooking, the volume of oil used for frying and the volume of oil discarded at the end of a day," she said.

The circular that came into effect from March says that "repeated frying of oils leads to changes in physiochemical, nutritional and sensory properties of cooking oil".

During frying, Total Polar Compounds (TPC), a benchmark for measuring the degradation of the oil, are formed in the oil which have adverse effects on health.

As per the Food Safety and Standards (Licensing and Registration) First Amendment Regulation 2017, the oil is not suitable for use if TPC is above 25 %. This will restrict FBOs from using same cooking oil for frying more than three times.

The circular also says that denatured oil should not be topped with fresh oil.

There has been allegations that used cooking oil generated by bigger restaurants and other FBOs were sold at cheaper rates to roadside eateries and small operators for further use as frying oil and for cooking. With the new regulation coming into effect, the oil generated should only be disposed to an agency authorised by FSSAI.

Dr. Vijayalalithambigai said that food safety officers had created awareness among operators of roadside eateries and small-scale restaurants on the ill effects of using denatured oil.

Following the new restriction, a Bengaluru-based agency has started collecting the discarded cooking oil for the manufacture of biofuel. The discarded oil can also be used by the civic body to be used in fogging machine for mosquito control.

नईदुनिया

Cooking Oil : तलने के बाद नष्ट करना होगा बचा तेल, देना होगा हिसाब

01 May 2019

Cooking Oil : तलने के लिए एक ही तेल के बार-बार इस्तेमाल से खाने के तेल की प्रकृति और गुण बदल जाते हैं।

लोकेश सोलंकी, इंदौर नईदुनिया। खाने की चीजें तलने के लिए एक ही तेल के बार-बार इस्तेमाल से सेहत खराब हो सकती है। इस बारे में समझाश देने के बाद अब फूड सेफ्टी एंड स्टैंडर्ड अथॉरिटी ऑफ इंडिया (एफएसएसएआई) ने कानून बना दिया है। कारोबारियों पर नियम लागू कर दिया है कि इस्तेमाल तेल की मात्रा से लेकर बचे तेल को नष्ट करने का रिकॉर्ड उन्हें रखना होगा। रिकॉर्ड का प्रमाणीकरण होगा व जानकारी खाद्य विभाग व एफएसएसआई को देनी होगी। आदेश एक मार्च से लागू हो गया है।

यह नुकसान होता है एक ही तेल में तलने से...

दिल्ली से एफएसएसएआई ने 30 जनवरी को आदेश जारी किया था। इसमें लिखा है कि तलने के लिए एक ही तेल के बार-बार इस्तेमाल से खाने के तेल की प्रकृति और गुण बदल जाते हैं। ऐसे तेल में टोटल पोलर कपाउंड पैदा हो जाते हैं। इसके खाने में इस्तेमाल होने से सेहत पर गंभीर दुष्परिणाम होते हैं। पहले ही नियम बनाकर ऐसे तेल के खाने में इस्तेमाल पर प्रतिबंध लगाया जा चुका है जिसमें टीपीसी 25 फीसदी से ज्यादा हो। ऐसा तेल किसी भी तरह से खाद्य श्रृंखला में वापस नहीं आ सके, इसलिए ताजा कानून लागू किया जा रहा है।

पांच बिंदुओं में रिकॉर्ड

तेल का पांच बिंदुओं में रिकॉर्ड रखा जाएगा। बचा तेल नष्ट करने चिन्हित और तय रिसाइकल एजेंसी को ही दिया जा सकेगा। कानून ऐसे कारोबारियों पर लागू किया है, जिनके यहां रोज 50 लीटर या ज्यादा तेल इस्तेमाल किया जा रहा है।

जनवरी में चेता दिया था

इसी साल जनवरी में इंदौर में वर्ल्ड मिठाई-नमकीन कॉनक्लेव हुआ था। इसी दौरान एफएसएसएआई निदेशक माधवी दास ने उद्योगों से कहा था कि तलने के बाद बचे खाद्य तेल को रिसाइकल कर बॉयो डीजल बनाया जा रहा है। शीर्ष नमकीन उद्योग के प्रतिनिधियों से कहा गया था कि एक बार तलने में इस्तेमाल हुए तेल को दोबारा काम में न लें। रिसाइकल करने वाली एजेंसी को उसे बेच दें। खाद्य उद्योग के प्रतिनिधियों ने भी इस पर हामी भरी थी और शपथ भी ले ली थी।

नर्माता अनजान

नमकीन निर्माताओं को नियम की जानकारी नहीं है। न सर्कुलर या आदेश दिया गया। - विकास जैन, अध्यक्ष, मप्र नमकीन व मिठाई एसोसिएशन

व्यवस्था नहीं बनी

एफएसएसएआई के नियम को लागू करवाने की कोई भी कोशिश नहीं हुई। खाद्य तेल को रिसाइकल करने वाले प्लांट गुजरात में हैं। जनवरी की कॉन्फ्रेंस में तय हुआ था कि प्लांट वाले बचा तेल इकट्ठा करने के लिए इंदौर में टैंकर या वैन भेजेंगे। उन्होंने अभी तक नहीं भेजे। नियम की जानकारी है। - मनीष स्वामी, मुख्य खाद्य निरीक्षक इंदौर

Haryana Entrepreneur Turns 5,000+ Kg of Waste Cooking Oil into Biofuel Every Day!

"I wanted to help resolve several problems at one time—from waste management to air pollution—and this venture seemed to be an excellent start for this," says Shiva Vig who buys waste oil from KFC, McDonald's and a thousand other restaurants in Delhi/NCR.

by **Tanvi Patel**May 15, 2019, 10:48 am

Three liquid-carrying tanker trucks stand outside a popular food chain outlet in Bawal, Haryana. They are here to collect the used cooking oil from the outlet that offers a wide range of fried food items. After using the oil twice, the restaurant is left with only one choice—to dispose of it. The high-quality oil finds two methods of getting disposed of either getting dumped into a water body or sold off at a cheap rate to roadside eateries that reuse it multiple times until it becomes a health hazard.

But these trucks, with the name "Bio-D Energy" printed on them, are here to serve an alternate purpose to the used cooking oil. They are here to transport hundreds of litres of this oil to a factory that will turn it into fuel for automobiles.

Started in 2015, Bio-D energy is a venture that produces biofuel from used cooking oil, serving a three-way purpose. "Through this initiative, we are preventing the adulteration of oil which is bought by big food chains and reused several times over by smaller restaurants.

But at the same time, we are also preventing the contamination of water, reducing the import of fossil fuels and reducing vehicular pollution," Shiva Vig, the founder of the organisation, tells The Better India.

The collection cars

It was back in 2012 that Shiva, who belongs to a business family came across this eco-friendly method of fuelling vehicles. He was in Dubai at the time, having just finished his college and helping his father in their paper importing business. Seeing that the world is becoming increasingly digital and that recycled paper is fast replacing virgin paper, Shiva was looking at

a bleak future for the family business. He started looking at ways to recycle paper and if the market is open for this variety.

As one thing led to another, he came across a company that imported cooking oil from Dubai and turned it into fuel. This got Shiva's brain gears moving. He studied the potential of this initiative.

He decided to start his venture in India.

"I wanted to help resolve several problems at one time—from waste management to air pollution—and this venture seemed to be an excellent start for this," he adds.

The burden of consuming fossil fuels

Third in the world in oil consumption, India imported about 195 million tons of crude oil and 23.3 million tons of refined petroleum products in 2015. The following year, our oil consumption grew by 8.3 per cent, marking the country's oil consumption to 212.7 million tonnes.

Vandana Hari, the founder of a Singapore based company that provides intelligence on global energy markets, tells the Economic Times, "India could very well be the biggest contributor of incremental oil demand growth for the next few years, led by its strong economic growth. It could overtake China as the country adding the most to global oil demand in absolute terms despite a much smaller base because, just as India's consumption is rising strongly, Chinese demand is cooling off."

One need not be reminded of how heavily fossil fuels cost us in terms of economics and the environment. And even as the world is gathering pace in innovating vehicles and other devices that use renewable energy instead of fossil fuels, we still have a long way to go in replacing most of our modern machinery with eco-friendly alternatives. Whether in terms of speed, efficiency or reliability, green machinery is still work-in-progress, and until we achieve

complete mastery, one needs to think of ways to reduce our carbon footprint with the resources available currently.

Bio-D energy is one such example.

“The fuel produced from used cooking oil is low on sulphur and emits next to zero carbon. Since it doesn’t need extra resources to be extracted, it lowers our carbon footprint by 70-75 per cent,” Vig tells TBI.

“Currently, we buy about 5,000-6,000 kg of used oil daily and have obtained a 95 per cent efficiency in converting it into biofuel. You can imagine the number of imports that can be reduced if this model is expanded further.”

How fuel is extracted from edible oil

Conventional biofuel is manufactured using a process called transesterification where a fatty acid (glyceride) reacts with methanol or ethanol in the presence of a catalyst. The raw materials used in transesterification are vegetable oils, animal fats or cooking oil and the end products are methyl esters (used as biofuel) and glycerin.

Bio-D buys used cooking oil from food chains like Burger King, McDonald’s, KFC and about 1,000 other restaurants across the National Capital Region (NCR) at around Rs 25 per kg. In 2016, KFC became their first partner, and in the following years, Bio-D’s base saw an exponential expansion.

“We imported machinery from Korea and modified its technology in India to make the process as efficient as we could. We can convert 150 tonnes of biofuel every day. Currently, we are

looking for buyers for the glycerin, but our biofuel is bought by Bharat Petroleum, Hindustan Petroleum as well as by some rural petrol pumps in Haryana, Punjab, Rajasthan, Uttar Pradesh, among others." the third generation entrepreneur informs TBI.

And although many Indian organisations manufacture biodiesel, Bio-D ensures a quality unmatched by the rest.

Prasan Surana, the Founder of Synergy Teletech, confirmed the quality of fuel produced by Bio-D, and told YourStory, "Bio-D energy distributes pure and distilled bio-fuel to us that we sell to our end-users at Rs 5 less than the market price of diesel. Office complexes, residential colonies, and other manufacturing units are a part of the consumer base."

The social and environmental impact of the 200 employee-large-enterprise has been evident in the energy market. Earlier this year, the Food Safety and Standards Authority of India (FSSAI) also awarded them as an authorised aggregator for its 'Repurpose Used Cooking Oil' Initiative.

A revolution, especially against polluting and exploitative sources of energy, has to be fought in multiple directions. Bio-D's manufacturing of biofuel is one such amazing venture that is saving the import of thousands of kilograms of fossil fuel.

Outlook
THE FULLY LOADED MAGAZINE

Why Using Recycled Cooking Oil Can Land Vendors In Jail

Unfortunately, lack of awareness along with greed to spend less on food production encourages a lot of unauthorised agents like scrap dealers to collect used cooking oil and mix them with the fresh one.

JEEVAN PRAKASH SHARMA | 08 APRIL 2019

Your favourite *pakoras* or *samosas* might taste delicious but do you know that it may be a serious health hazard if the oil used to fry them is not fresh, a common practice at almost all roadside food vendors who aren't aware of the health hazards or legal implications of repeated heating of edible cooking oil.

Used cooking oil, also called UC, is carcinogenic and can lead to severe health ailments.

Unfortunately, lack of awareness along with greed to spend less on food production encourages a lot of unauthorised agents like scrap dealers to collect used cooking oil (UCO) from big food business operators (FBOs) such as restaurants and hotels and sell it to the oil dealers who mix them with the fresh one. Road-side food vendors are also a big client for UCO.

Being a profitable proposition in the unauthorised sale, UCO is an incentive for everyone.

Take the case of used mustard oil. While an authorised company buys it from FBOs at Rs 30 per litre, scrap dealers can pay up to Rs 55 per litre for the same. Hence, many FBOs prefer to sell it to scrap dealers.

The scrap dealers further sells it to road-side food vendors at Rs 60-70 a litre, which is at least Rs 20-30 cheaper from the fresh oil.

Aware of the blatant misuse of UCO in the food chain, Indian food regulator, Food Safety and Standards Authority of India (FSSAI) issued a notification last year in June in which it asked all the small and big food business operators not to heat the same cooking oil three times.

It also made mandatory for FBOs to dispose of the UCO to only authorised agents like bio-diesel manufacturers.

Since the notification didn't change the scenario much, the regulator has now decided to ask all the FBOs, whose daily oil use is 50 litre or above, to maintain the record of the daily purchase, use and disposal status.

"From June 1, all the FBOs, whose daily oil use is 50 litre and above, will keep a record of the disposal so that the UCO doesn't enter the food chain," says FSSAI official spokesperson.

"FSSAI's initiative will compel all FBOs to sell UCO to bio-diesel manufacturers or other authorise agents. That's how we can convert the poisonous waste into useful resource," says Shiva Vig, CEO, BioD Energy (India) Pvt Ltd, a company which collects used cooking oil from 800 kitchens of NCR as notified by FSSAI including food joints, restaurants and hotels, to convert it into biodiesel.

The FSSAI spokesperson says that its earlier order had banned the use of oil more than three times but now it is going by the presence of the total polar compound, a chemical compound which increases after every time oil is heated.

A thermometer like device, which every food operator is supposed to have, can tell the amount of TPC if dipped in hot oil.

"Research shows that TPC is the best indicator," says the spokesperson adding that if a food operator is found violating FSSAI norm he can be subjected to criminal prosecution under food safety act.

Food safety experts agree that UCO's conversion to bio-diesel will reduce dependency on imported crude oil, fight pollution, manage illegal discharge of oil into a drainage system that contaminates water and clogs drainage system.

"It is estimated that biofuel can save $10 billion forexes of the country every year", said Shiva.

The FSSAI's initiative has major hurdles too. First of all the roadside vendors seem to be off the hook right now as due to low consumption they don't need to maintain the disposal status.

Secondly, its effective implementation depends on state governments as FSSAI only makes regulation and its enforcement is with the state food commission, which is always understaffed.

Food safety experts say that enforcement of such regulation is easier said than done.

An agriculture scientist, engaged with FSSAI as a consultant, says that the restriction on the use of UCO with more than 25% TPC is applicable on everyone be it road-side vendors or FBOs, it's better to educate and make the stakeholders aware of both the harmful effect as well as the legal implication.

THE HINDU BusinessLine

A slick recipe for both health and energy

M RAMESH

An attempt to produce biodiesel from used cooking oil on a large scale at a facility in Haryana could add a new dimension to sustainability

It is the first biodiesel plant of its size in India and has been in operation for two months. Its success, therefore, will set a benchmark.

In Bawal, Haryana, the plant was set up with an investment of ₹90 crore and can produce 100 tonnes of biodiesel a day. But its uniqueness is in the raw material it uses: used cooking oil or UCO. On that peg hangs a bag of benefits, but also a bunch of problems.

It will be some years before one can judge whether BioD Energy Pvt Ltd was smart or foolhardy in taking the risk with UCO. But at the end of two months of operations — the plant went on stream in early February — the management seems to be satisfied with the result.

In developed countries, the application of UCO to produce biodiesel has been in vogue for many years. In the US, for instance, UCO is mixed with aviation fuel. Since India consumes about 23 million tonnes of cooking oil, it ought to be a major user of UCO. But the reality is the opposite — only three million tonnes of UCO is recovered.

The reason is the cooking culture in this country. In India, commercial users of oil — hotels, restaurants, bakeries and snack-makers — do not dispose of the oil once it is used. Instead, it is carefully preserved and re-used several times over until it becomes unsuitable and darkens in colour. It is at this point that the oil is sold to low-end eateries, food stalls and snack-makers. Finally, most of the oil is consumed in kitchens.

That used oil is harmful for health has been well recognised. Each re-use not only brings down the quality of the oi, but also increases health hazards, including the risk of cancer. But economics overrides such concerns and the use of oil has carried on unchecked.

Makers of UCO-based biodiesel just can't compete with the price the restaurants offer for used oils and hence, biofuel manufacturers have generally kept away from this raw material.

A welcome intervention

Things changed for the better in July 2018 when the Food Safety and Standards Authority of India (FSSAI) brought in rules for cooking oil and declared it "unsafe" to use oils multiple times. The rules are clear that oils containing more than a certain level of 'total polar compounds' are unsafe. But the devil is in getting the commercial kitchens to comply. In the war between law and economics, the latter generally gets the upper hand.

But BioD Energy has taken a leap of faith. It has hedged itself by designing its plant to be also able to use fatty acids, an alternative raw material. Shiva Vig, CEO of the company, says that in the last two months the company collected 250 tonnes of UCO from 700-odd kitchens in Delhi-NCR and Haryana. It has been able to obtain it for about ₹28 a kg – landed cost at the factory is another ₹10 — and sell the biodiesel to pumps in the region. Shiva says the cost works out cheaper than conventional diesel.

So far, so good. The problem, nationally, lies in scaling up the effort so that three million tonnes of UCO is used for making biodiesel.

Last August, a month after bringing in the rules for UCO, the FSSAI launched an initiative to bring the corporate sector into the UCO-biodiesel fold. Over 60 companies came forward to put up plants at 100 locations. The McDonald's facility was the first to take off. But it uses its products in-house, for powering its trucks.

BioD Energy's performance will be watched by others wanting to enter the field. "The profitability of biodiesel production is significantly linked with the policies of multiple sectors such as agriculture, food and feed processing, research and development, industry and commercial trade," notes Vig.

India consumes about 85 million tonnes of diesel annually. If only 5 per cent of it could be substituted with biodiesel, it would create a biodiesel market of about 4 million tonnes. Instead of growing crops for producing biodiesel, UCO could be gainfully used. But that is only if *dhabas* and street-side food vendors are persuaded not to use second-hand cooking oil.

The Tribune
VOICE OF THE PEOPLE

FDA asks eateries to stop reheating cooking oil

Apr 1, 2019

Nitish Sharma

Following the guidelines of the Food Safety and Standard Authority of India (FSSAI), the Food and Drug Administration (FDA) has started asking restaurant and dhaba owners and fast food manufacturers to stop reheating cooking oil and also to maintain a stock register of used and discarded cooking oil.

The oil will be collected by the FSSAI through authorised agencies and the sellers will also be given some incentive. However, it is not clear how much incentive will be given to the sellers

Subhash Chander, Food and Safety Officer, Ambala, said: "Repurpose Used Cooking Oil is an ecosystem that will enable the collection and conversion of used cooking oil into biodiesel. Following the directions of the FSSAI, restaurant, dhaba operators and fast food manufacturers are being asked not to reheat the cooking oil and maintain the stock register. A pro forma is being provided to manufacturers and they have been asked to adhere to the directions."

"Meetings have been held with fast food manufacturers and dhaba owners and directions under Section 16 (5) of the Food Safety and Standards Act 2006 regarding disposal and collection of used cooking oil have been given. Not only fast food manufacturers but also people at their houses must also avoid reheating cooking oil," he said.

"Use of cooking oil for repeated frying leads to the formation of total polar compounds making it unfit for human consumption and can lead to several diseases. The FSSAI has prescribed a limit for Total Polar Compounds (TPC) to be maximum 25 per cent, beyond which the cooking oil is not suitable for human consumption," the Food and Safety Officer said.

Though it implements on the manufactures using at least 50 litre of oil in a day, small-time manufacturers are being asked to jointly collect the oil.

Gagandeep Singh, a dhaba operator, said: "We already don't reheat the cooking oil as a limited quantity of oil is used. Earlier fast food manufacturers used to purchase tin oil cans and put the used oil back into the tin. But now, the manufacturers prefer small packing and use them as per their need."

Fssai Introduces Restrictions on Reusing Cooking Oil: Tips to Be Healthy at Home

Repeated use of cooking oil for frying can have serious repercussions, something that doctors the world-over agree.

by **Vidya Raja**February 20, 2019, 10:28 am

Come March 1, the Food Safety and Standards Authority of India (FSSAI) will impose a new rule on eateries and restaurants. This rule will prohibit them from using the same batch of cooking oil for more than three times.

FSSAI has notified the Food and Drug Administration (FDA) departments in each state to ensure that all eateries using more than 50 liters of oil per day comply with the rule from 1 March 2019. The rule has been brought into effect as per Section 16 (5) of the Food Safety and Standards Act, 2006.

Repeated use of cooking oil for frying can have serious repercussions, something that doctors the world-over agree.

Sharmila Sanyal, professor at the All India Institute of Hygiene and Public Health, says, "Aldehydes form when the same cooking oil is reused and these are carcinogenic. Vegetable oils commonly used in cooking such as sunflower and corn oil will develop carcinogenic compounds after repeated use; so used oil should be thrown away," in a report published by The Telegraph.

Pallavi Dadare, commissioner of FDA (Maharashtra division) in a report published by Times Now, said that the repeated usage of cooking oil changes the physiochemical, nutritional and sensory properties. Total polar compounds (TPCs) formed in the oil during frying are called 'frying fats' and the rule aims to curb the consumption of these 'frying fats'.

According to the FSSAI website, these are the guidelines one must follow while using Used Cooking Oil (UCO)

· Oil once used for frying foods should be filtered and may be used for making curry preparations in order to make it economical. Avoid using the same oil for frying.
· UCO should be disposed of when blue-grey smoke appears or tough foam gets formed or

oil becomes dark and murky or the consistency of the oil changes.
· These are some of the indications of the deteriorated quality of the oil.

Used cooking oil should be consumed in a day or two. It should not be stored for a longer period of time as the rate of deterioration is higher in used oil.

Do not refill the fresh oil container with UCO. Store it separately.

While these rules are applicable to big eateries and establishments, ever wondered about the oil that we use at home? How many times can that be re-used? All Indian households use oil extensively in their day to day cooking and hence do not think twice about reusing the oil, sometimes even more than thrice.

The most important point to keep in mind is to choose the right oil for the recipe. Every oil has a specific smoking point, the temperature where the oil starts breaking down and starts, well, smoking. Dr. SC Manchanda, Department of Cardiology, Ganga Ram Hospital, told The Economic Times, "In Indian cooking conditions, which mostly involve deep frying, our age-old oils like ghee, coconut and mustard oils score better than refined and other oils in health benefits."

After using the oil for the first time, let it cool down and then filter all the food particles. Ensure that you store it in an air-tight container. Letting pieces of food stay in the oil can turn it rancid.

If the oil foams upon re-heating or emits a rancid odour then it is better to discard it. Other signs to look out for are thick texture and a dark and murky appearance.

Even if one follows all of the above guidelines, one should not be reusing oil that is more than 1 or 2 months old. Also be mindful of how much oil you use in your cooking. Try and minimize its usage so that there is hardly any leftover oil to begin with.

Be mindful of the quality and quantity of the cooking that you are allowing in your body. Small but smart changes in the present will benefit us in big ways in the future.

THE NEW INDIAN EXPRESS

Turning used oil into fuel good but not happening

FSSAI has mandated that the used oil needs to be discarded to an authorised FSSAI agency.

18th February 2019

A food vendor reuses cooking oil to fry eatables in Goshamahal | S Senbagapandiyan

By Ajay Moses

Express News Service

HYDERABAD: Did you know that your cooking oil is a potential bio-fuel in itself? In a chemical process named trans-esterification, edible oils are converted into biofuels. This process becomes of great use in recycling thousands of litres of used cooking oil, that either goes into the drains or worse, reused, especially given the carcinogenic properties of reused oil.

Taking note of this fuel-opportunity, the Food Safety and Standards Authority of India (FSSAI) mandated every food operating business that uses more than 50 litres edible oil per day to discard all of its leftover oil by day-end. However, Telangana is far from reaping fuel from cooking oil.

FSSAI has mandated that the used oil needs to be discarded to an authorised FSSAI agency. Originally shaped in August 2018, the revised policy mandates all food operating business to comply with the new norms of maintaining records of used oil starting March 1, 2019. But given the circumstances, this seems to be a far off dream. Though there are several aggregators that need to be appointed by the FSSAI across India, Telangana and many other states have no aggregator appointed as till date. From the data available with Bio-Diesel Association of India (BDAI), Telangana along with Andhra Pradesh, Uttarakhand and Madhya Pradesh, is yet to see a State-wide aggregator.

“There is no awareness among hotels and fast food centres relating to the disposal of discarded edible oil. The conversion of discarded oil into biofuel is a good one but that is not happening as there is no one to take the oil, as of now,” said an FSSAI official. “It will take time until we send out notices to all eateries and educate them on this before there is any enforcement conducted,” he added. The GHMC food inspectors have found out that a lot of food joints in the city reuse cooking oil until it turns black.

FSSAI Set To Take Action Against Re-Use Of Cooking Oil By Restaurants

NDTV Food | Updated: February 14, 2019 18:17 IST

Highlights

- FSSAI has asked eateries to dispose of denatured cooking oil
- The cooking oil must be discarded after using for 3 times
- The rule will come into effect from March 1st, 2019

Health experts have often warned against the dangers of re-using cooking oil, which gets denatured after it is used to cook food too many times and may lead to health complications for the consumer. But while we can easily change cooking oil and discard the old oil, there's no way for the consumer to know whether or not restaurants and cafes follow this guideline. The Food Safety and Standards Authority of India (FSSAI) has taken action in this regard and has asked restaurants and Food Business Operators (FBO) to dispose of the used cooking oil after using it for upto three times for cooking. The rule will apply for eateries that use up more than 50 litres of oil for frying, every day.

The FSSAI circular said that these eateries are to maintain a record of oil used up on a particular date and to dispose off the oil to agencies authorized by the government body. These rules will come into effect from March 1st, 2019 and the FSSAI has directed food safety commissioners of all Indian states and Union Territories to initiate the enforcement of these rules. This rule relating to the use and re-use of cooking oil has been brought into action, as per Section 16(5) of the Food Safety and Standards Act, 2006. The FSSAI circular also warns against topping denatured oil with fresh oil, once it has been used beyond healthy limits.

In the circular, the government agency said, "Repeated frying of oil leads to change in physiochemical, nutritional and sensory properties of edible oil. During frying Total Polar Compounds are formed in the oil which have adverse effects on health." It also stated that beyond the limit of 25 per cent Total Polar Compounds, vegetable oil becomes unfit for use, as per Food Safety and Standards First Amendment Regulation, 2017. It goes to reason then

that we should all discard cooking oil once it has been used more than two times for frying, in order to prevent harmful impact of the oil on our and our families' health.

MIRRORNOWNEWS.COM

FSSAI introduces restriction on eatery owners from using same batch of cooking oil more than thrice

Mirror Now
Feb 13, 2019 |

In order to curb the consumption of 'frying fats', the FSSAI and the FDA have brought in a restriction for eatery owners prohibiting them from using the same batch of edible/cooking oil more than thrice.

FSSAI has asked FDA to ensure that the new rule is imposed and adhered to by restaurant and eatery owners to adhere to the new guidelines

Mumbai: The Food Safety and Standards Authority of India (FSSAI) is all set to impose a new rule on eateries and restaurants which will prohibit them from cooking more than three times with the same batch of cooking oil. The central body has sent notices to the Food and Drug Administration (FDA) departments of all states asking them to ensure that the practice is implemented by March 1.

In its notice, the FSSAI has asked FDA to ensure that the new rule is imposed and adhered to by restaurant and eatery owners before the stipulated deadline. This rule will apply for all eateries and restaurants using more than 50 litres of oil per day. The rule has been brought into effect as per Section 16 (5) of the Food Safety and Standards Act, 2006.

The FSSAI also said that starting March 1, it will conduct inspections across the country to ensure that the rule is being adhered to by eatery and restaurant owners. These owners have been asked to prepare and maintain a daily chart recording their daily consumption of oil in addition to keeping a log of their purchase of edible oils.

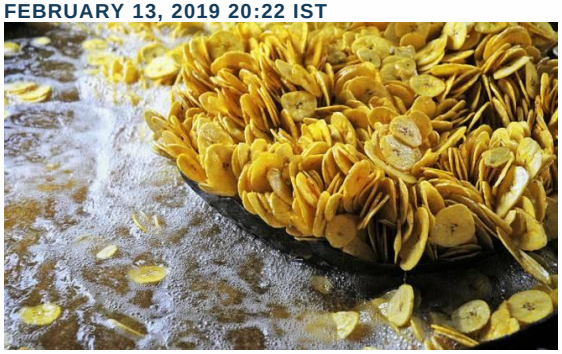
Pallavi Dadare, commissioner of FDA (Maharashtra division) told media outlets that repeated use of cooking oil leads to changes in the physiochemical, nutritional and sensory properties. Total polar compounds (TPCs) formed in the oil during frying are called 'frying fats' and the rule is aimed at curbing the consumption of these 'frying fats'.

THE HINDU

Kerala takes the lead in tackling trans fat hazard

C. Maya

FEBRUARY 13, 2019 20:22 IST



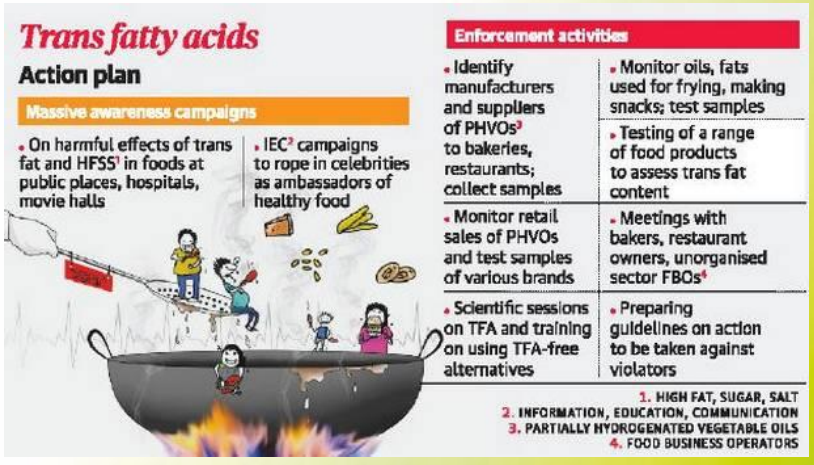
ess than 1% of total energy intake |

Food industry to be encouraged to meet statutory limits set for TFA, people to be made aware of its harmful effects

In a first, the Health Department has drawn up an action plan to generate public awareness on the harmful effects of trans fatty acids (TFA) in commercially available food items and to encourage the local food industry to meet the current statutory limits set for TFA.

The draft is expected to be finalised and released shortly.

The initiative has been launched by the department as various studies suggest that an unhealthy diet with a high TFA content is a significant factor that pushes up metabolic syndrome and the burden of its associated complications amongst Keralites.



The year-long action plan has specific components on building awareness on trans fat amongst food business operators (FBOs) and giving them scientific sessions and training on how they can keep their food TFA-free.
Generating public awareness on the harmful effects of trans fat, especially among schoolchildren, is being given special focus so that the demand for healthier versions of their favourite foods come from the children themselves.
Clear timelines are being set as to when each of the components of the plan should be completed and when enforcement should begin.
Salt being a major contributor to hypertension and stroke, the action plan also plans to address the high salt content in processed foods, pickles, papads and condiments by encouraging manufacturers to move to low sodium options.

Need for alternatives

"The food industry is willing to ditch partially hydrogenated vegetable oils (PHVOs, one of the main sources of TFA in industrially produced food) and switch to TFA-free margarine or shortening to produce baked goods. But we have to provide them alternative technologies and know-how on re-adjusting their recipes to maintain the taste and texture of their products.
The pickle industry is in agreement that good hygienic and manufacturing practices and low sodium options can reduce the salt content in their products," a senior health official said.

Support for initiative

The department is being supported in this initiative by Vital Strategies, the nutrition wing of the World Bank, WHO, the Food Safety and Standards Authority of India (FSSAI), and the State Food Safety wing, which will be in charge of enforcement.
An experts' group has been constituted for the implementation of the guidelines on TFA and salt reduction.
The action plan has been drawn up after high profile meetings involving health experts and FBOs.

NEWS 18 हिंदी

अब होटल का खाना होगा सेहतमंद, सरकार 1 मार्च से लागू कर रही है नया नियम

दरअसल, सरकार सेहत को नुकसान पहुंचाने वाले सिस्टम पर रोक लगाना चाहती है. नए नियम 1 मार्च से लागू हो जाएंगे.

February 12, 2019

बहुत जल्द बड़े रेस्टोरेंट और फूड कंपनियां जला हुआ खाने का तेल दोबारा इस्तेमाल नहीं कर पाएंगे. दरअसल, सरकार सेहत को नुकसान पहुंचाने वाले सिस्टम पर रोक लगाना चाहती है. नए नियम 1 मार्च से लागू हो जाएंगे.

फूड रेग्युलेटर FSSAI इस आदेश से दो मकसद पूरा करना चाहती है. पहला जो ट्रांसफैट की समस्या है जिसकी वजह से हार्ट की बीमारियां होती हैं उनपर लगाम लगाने की कोशिश है क्योंकि जब आप खाने का तेल का दोबारा इस्तेमाल करते हैं तो उसमें ट्रांसफैट बनने की ज्यादा संभावना होती है.

दूसरी तरफ बायोडीजल मिशन है भारत है उसको सोर्स मिल सके जो जरूरी तेल है वो मिल सके. ये भी एक मकसद है इस पूरे आदेश का और इसके लिए जितने ऐसे बड़े रेस्टोरेंट्स हैं जो हर दिन में 50 लीटर से ज्यादा कुकिंग ऑयल तलने के लिए इस्तेमाल करते हैं उनको अपना एक रिकॉर्ड मेंटेन करना पड़ेगा. उन्होंने कहां से एडिबल ऑयल है जो सोर्स किया है, कितना इस्तेमाल किया है और कितना डिस्कार्ड किया और किस एजेंसी को डिस्कार्ड करने के बाद दिया है. ये सारा रिकॉर्ड उसे मेंटेन करना पड़ेगा. सरकारी एजेंसी जो इस तेल को कलेक्ट करेगी वो इसे बाद में बायोडीजल बनाने के लिए इस्तेमाल करेगी.

Live हिन्दुस्तान .com

कैसा तेल कर रहे हैं इस्तेमाल**?** रेस्तरां और ढाबों को देनी होगी जानकारी**,** नहीं कर पाएंगे जले तेल का बार-बार उपयोग

स्कन्द विवेक धर,नई दिल्ली

अगले महीने से रोजाना 50 लीटर से अधिक तेल का खपत करने वाले सभी प्रतिष्ठानों को इस बात का हिसाब देना होगा कि उनके यहां कितना इस्तेमाल किया हुआ तेल बचा रह गया और उस बचे हुए तेल को किसे बेचा गया। भारतीय खाद्य संरक्षा एवं मानक प्राधिकरण (एफएसएसएआई) ने खाद्य संरक्षा एवं मानक अधिनियम, 2006 की धारा 16(15) के तहत ये निर्देश जारी किए हैं।

उपयोग किए हुए तेल का पुन: इस्तेमाल और छोटे दुकानदारों को कम भाव पर बेचने की शिकायत मिलने के बाद एफएसएसएआई ने यह कदम उठाया है। एफएसएसएआई के निर्देश में कहा गया है कि यह सुनिश्चित करने के लिए कि इस्तेमाल किया हुआ खाद्य तेल दोबारा खाने के काम में न लिया जाए यह फैसला किया गया है कि 50 लीटर से ज्यादा रोजाना तेल खपत करने वाले सभी प्रतिष्ठान बचे हुए तेल को एफएसएसएआई या राज्यों के फूड सेफ्टी कमिश्नर की ओर से अधिकृत एजेंसियों को ही बचा हुआ तेल देंगे।

ऐसे करें आधार कार्ड को लॉक, नहीं कर पाएगा कोई गलत इस्तेमाल

इसके अलावा इन प्रतिष्ठानों को रोजाना के आधार पर तेल के प्रकार, तलने के लिए ली गई तेल की मात्रा, दिन के अंत में बचा हुआ तेल, बचे हुए तेल के निपटारे का तरीका और बचा हुआ तेल खरीदने वाली एजेंसी की जानकारी एफएसएसएआई या राज्यों द्वारा नियुक्त खाद्य सुरक्षा विभाग की ओर से नियुक्त प्राधिकारी को देना होगा। एफएसएसएआई पहले इन नियमनों को एक मार्च 2019 से लागू करना चाहता था। हालांकि, व्यापारियों की ओर से समय मांगने के चलते इसे एक जून से लागू किया जा रहा है। मालूम हो, हिन्दुस्तान ने छह मई को प्रकाशित अपनी खबर में खुलासा किया था कि कई बड़े रेस्टोरेंट चेन अपने यहां इस्तेमाल तेल को 20 से 25 रुपए लीटर के भाव पर छोटे दुकानदारों को बेचे हैं।

होटल-रेस्टोरेंट और ढाबों पर इस्तेमाल होने वाले खाद्य तेल के नमूने लेकर जांच को भेजे जाएंगे। जांच में नमूने फेल होने पर होटल-रेस्टोरेंट और ढाबों के लाइसेंस कैंसिल कर कानूनी कार्रवाई की जाएगी। सूत्रों ने बताया कि दो बार से अधिक जले तेल का इस्तेमाल करने वाले रेस्तरां पर सख्त कार्रवाई करने की तैयारी हो रही है। दोषी पाये जाने वाले रेस्तरां या होटल पर एफएसएसएआई दो लाख रुपये तक का जुर्माना लग सकता है। .

DECCAN Chronicle

Thiruvananthapuram: Cooking oil to be 'reused' to make biofuel

DECCAN CHRONICLE. | SHAINU MOHAN

PublishedJul 1, 2019, 1:37 am IST

Food biz operators must hand over oil instead of reheating.

FSSAI standards allow the reuse of cooking oil until it reaches a maximum Total Polar Compound (TPC), considered as an accurate indicator of the quality of frying oil, the limit of 25 per cent.

THIRUVANANTHAPURAM: As part of its effort to prevent reuse and ensure scientific disposal of cooking oil by food business operators (FBOs), Kerala Commissionerate of Food safety (KCFS) has launched Ruco or repurpose used cooking oil.

The initiative mandates the FBOs to hand over the oil to agencies accredited by the Food Safety and Standards Authority of India (FSSAI) for biodiesel production.

The plan is to ensure a tie-up with FBOs and accredited agencies under Biodiesel Engine Association for collection and disposal of used fryer oil.

The Commissionerate has found severe malpractices involved in the usage of cooking oil by FBOs, which could pose a serious health threat to consumers. Its toxicity is associated with several ailments such as hypertension, atherosclerosis and liver diseases.

A top official of the Commissionerate told DC that a survey to find out disposal method adopted by FBOs for used cooking oil is ongoing at all districts. The food safety authorities have identified around 24 FBOs in Thiruvananthapuram and Alappuzha who uses above 50 litres of cooking oil per day.

"As per the information we got, there are agencies collecting cooking oil, but we are not sure how they are disposing of it. Once the survey is finished, we will be convening a meeting with all the agencies involved in this.

Only accredited agencies would be allowed to collect fryer oil. Reuse of cooking oil is pervasive in the state," said an official.

FSSAI standards allow the reuse of cooking oil until it reaches a maximum Total Polar Compound (TPC), considered as an accurate indicator of the quality of frying oil, the limit of 25 per cent.

Recently, FSSAI had provided digital cooking oil tester to the Commissionerate to check their quality at eateries and bakeries.

According to officials, discarded oil dumped into water bodies and open spaces could degrade the environment, and hence scientific disposal should be ensured.

DNA

Gujarat: Release data of reused oil causing cancer, CAIT asks authorities

CAIT wants the government to review its decision on merits and scientific analysis

Confederation of All India Traders (CAIT) on Monday asked state's food regulator to release the data which suggests that if edible oil is used multiple times can cause cancer. The state government had recently mandated that beyond a certain extent edible oil cannot be reused for cooking or else it is harmful to human health and can cause even cancer. CAIT wants the government to review its decision on merits and scientific analysis.

As per the norms of Food Safety and Standards Authority of India (FSSAI), edible oil if reused multiple times to cook food is harmful to the consumer. Cooking in same oil multiple times would increase the content of Total Polarized Compound (TPC) to exceed the permissible limit of 25%. Gujarat is conducting a pilot study to execute the provision.

However, in a letter to Food and Drugs Control Authority (FDCA) of Gujarat, CAIT has demanded from the findings of any scientific study that proves that TPC beyond 25% has causes cancer. "In Gujarat consumption of farsan is very common. So far there is no evidence

of farsan made from reused edible oil to cause cancer or any other health hazard," said Pramod Bhagat, president of CAIT in Gujarat. He also termed the decision as short sited.

"The food industry is by and largely unorganized. It would be impracticable to monitor the implementation of the provision. If implemented, it would force many street food vendors out of job. On the other hand, it will open floodgates for Inspector Raj for the organized players. Since there are no instances of people falling ill even after consuming food from roadside vendors, the government should review the decision and instead enforce measures, that genuinely reduces the risk on the consumers," said Hiren Gandhi, a member of CAIT.

CAIT said that since most of the players in the food sector are in the unorganized sector and even illiterate, it would be difficult for the authorities to ensure that these norms are adhered to.

THE HINDU BusinessLine

New regulations for 'used cooking oil' come into effect

Our Bureau New Delhi | Updated on July 02, 2018 Published on July 02, 2018

FSSAI in talks with industry to convert used-cooking oil into bio-diesel

State Food Safety Commissioners have been advised to focus on awareness and education programmes, surveillance and enforcement activities for the new set of regulations - THE HINDU

With the new regulations for monitoring "used cooking oils" coming into force from July 1, the Food Safety and Standards Authority of India (FSSAI) on Monday said the implementation of these regulations will require focus on consumer education, enforcement as well as creation of an eco-system for collection of "used cooking oil" to produce biodiesel.

FSSAI said it is in discussion with the Indian Biodiesel Association to establish a nation-wide eco-system for collection of used cooking oil and its conversion to bio-diesel.

The new regulations have set the maximum permissible limit of Total Polar Compound (TPC) in edible oil at 25 per cent. Repeated frying and usage of edible oil changes its physiochemical

and nutrition properties and leads to the formation of TPC, which makes it unfit for human consumption.

“From July 1, onwards, all Food Business Operators (FBOs) would be required to monitor the quality of oil during frying by complying with the said regulations,” FSSAI said in a statement. The Food Authority has also established testing protocols for Total Polar Compounds.

Pawan Agarwal, CEO, FSSAI, said effective implementation of used cooking oil standards require “Triple E strategy” and a co-ordinated effort.

“First ‘E’ in the ‘Triple E Strategy’ is ‘Education’ that is educating both the consumers and food businesses about public health consequences of spoiled ‘used cooking oil’. Second ‘E’ is ‘Enforcement’, particularly amongst large food processing plants, restaurants and fast-food joints that are frying food in large quantities; and the third ‘E’ is developing an ‘Ecosystem’ for collection of used cooking oil and producing biodiesel from it ”, he added.

FSSAI has also advised State Food Safety Commissioners to focus on awareness and education programmes, surveillance and enforcement activities for these new set of regulations. “Annually, about 23-million tonne cooking oil is consumed in India. There is potential to recover and use about 3 million tonnes of this for production of bio-diesel,” FSSAI added.

As of now, used cooking oil is either not discarded or disposed in an environmentally hazardous manner and sometimes even finds it way to smaller restaurants, *dhaabas* and street-vendors.

DownToEarth

Regulations on used cooking oil come into effect; plans afoot to convert it into bio-diesel

FSSAI has rolled out new standards for used cooking oil and it is exploring possibility of using it as feedstock for biodiesel production

By Meenakshi Sushma
Last Updated: Friday 06 July 2018

Currently, used cooking oil is either not discarded or disposed of in such a manner that it chokes drains and sewerage systems. Credit: PXHere

Repeatedly heating cooking oil is a common practice in eateries, be it roadside food joints or restaurants. But this practice comes with a health cost. To address this issue, the Food Safety and Standards Authority's (FSSAI) regulations for monitoring quality of used cooking oil came into effect on July 1.

"From July 1, onwards, all Food Business Operators (FBOs) would be required to monitor the quality of oil during frying by complying with the said regulations," FSSAI said in a statement.

It has also established testing protocols for TPC. In fact, small handheld devices are now available that check TPC in the oil during frying.

Fixing standards

According to the regulations, the Total Polar Compounds (TPC) has to be within a limit of 25 per cent. In many countries, TPC is used to measure the quality of oil. The level of TPC increases every time oil is re-heated. Some of the studies show that TPC accumulation in oil without food is slower than that in oil frying with food.

The maximum level of TPC at 25 per cent was set for the regulation of deep frying oil in Taiwan. “After 48 hours of frying with foods, the contents of total polar compounds in both oils were shown to exceed the limit of 25%,” observed a study.

Higher level of TPC in cooking oil leads to health issues like hypertension, atherosclerosis, Alzheimer’s disease and liver disease. One of the studies also noticed high levels of glucose, creatinine and cholesterol with declined levels of protein and albumin in cooking oil.

Disposal of used cooking oil

Currently, used cooking oil is either not discarded or disposed of in such a manner that it chokes drains and sewerage systems. Apart from setting quality standards, the new regulation has also addressed the way this oil is discarded. As used cooking oil is considered the most reasonable feedstock for biodiesel production, the FSSAI is planning to redirect the used cooking oil from the food business operators. It has already started collecting used oil in small quantities either through a barter arrangement or at cost.

"Annually, about 23 million tonnes of cooking oil is consumed in India. There is potential to recover and use about 3 million tonnes of this for production of bio-diesel," FSSAI told media. This will have an estimated value of Rs18,000 crore per year.

FSSAI has advised State Food Safety Commissioners to focus on awareness and education programmes, surveillance and enforcement activities for the new set of regulations.

Punjab Warns *Dhabas*, Hotels Against Endlessly Reusing Cooking Oil

The spokesperson said according to the guidelines issued by the FSSAI, the limit for the Total Polar Compounds (TPC) to be maximum 25 per cent beyond which the vegetable oil is not suitable for use.

All India | Press Trust of India | Updated: July 15, 2018 22:30 IST

Repeated frying of oil leads to changes in physiochemical, nutritional and sensory properties: Official

CHANDIGARH:

The Punjab government today said it has issued instructions to restaurants, fast food counters, hotels and 'dhabas' to use edible oil as per the set standards of the Food Safety and Standards Authority of India (FSSAI), an official spokesperson said.

He said repeated frying of oil leads to changes in physiochemical, nutritional and sensory properties of edible oil.

"Therefore, it is important to monitor the quality of oil to avoid the use of degraded oil for cooking purposes," the spokesperson said.

He said at present, there are general provisions in the regulation to avoid re-use and re-heating of edible oil, which should be strictly followed.

The spokesperson said according to the guidelines issued by the FSSAI, the limit for the Total Polar Compounds (TPC) to be maximum 25 per cent beyond which the vegetable oil is not suitable for use.

He said these standards have been finalised after consideration of the comments received from stakeholders in this respect and shall come into force from July 1.

The spokesperson said the state government has commenced the state-wide campaign of 'Mission Tandarust Punjab', under which surprise checking and raids were conducted to curb the selling of adulterated food in the state.

He said instructions have been issued to the district authorities to check the standards and quality of edible oil which were used to cook food for commercial use.

FINANCIAL EXPRESS
Read to Lead

How McDonald's is powering its trucks by recycling used cooking oil – Check the company's future plans

By: FE Bureau |

Mumbai | Updated: July 24, 2018 2:26:00 AM

Hardcastle Restaurants (HRPL), the master franchisee of McDonald's in west and south India, has started to run its delivery trucks in Mumbai with biodiesel made from its own used cooking oil.

Hardcastle Restaurants (HRPL), the master franchisee of McDonald's in west and south India, has started to run its delivery trucks in Mumbai with biodiesel made from its own used cooking oil. The company plans to link all its 270 outlets to produce around 7 lakh tonnes of biodiesel in the next couple of years, said Vikram Ogale, director – supply chain and quality assurance.

Over the next four years, the company is looking at expanding its restaurant footprint to 450-500 and will generate around 15 lakh litres of used oil to make biodiesel to run its refrigerated delivery trucks. Sandeep Chaturvedi, president, Biodiesel Association of India, said, “The Food Safety and Standards Authority of India (FSSAI) has enforced that restaurants and food manufacturing companies cannot reuse oil with polarity value of 25 or more than that. Earlier restaurants used to sell these oil to companies who used to filter it bleach it and again resale it packed in a fresh bottle. Other companies like ITC, Parle and Balaji are all working on the same and eventually all restaurants and food manufacturers will have to join in. We are developing a software so that there are no leakages in the system and all restaurants will have to join. Further, the government is planning to launch a campaign to create awareness on the same.”

According to the company, biodiesel made from used cooking oil is a cleaner fuel with 75% lower carbon emissions than diesel over its entire life cycle. It is an eco-friendly fuel that helps limit global warming. McDonald’s started this as a pilot in 2017 and has successfully scaled it up to cover all the 85 restaurants in Mumbai. Today, the company is converting more than 35,000 litres of used cooking oil every month into biodiesel. The process of conversion begins at the restaurant where the team from the distribution centre collects used cooking oil. The collected oil is then taken to the converting facility in tankers and here, the oil is converted into bio-diesel and sent back to the distribution centre. It is then used in dedicated refrigerated trucks, the company said in a statement.

India's new biofuel policy to amplify clean energy use

by Sapna Gopal | Jul 25, 2018

The recently announced national policy on biofuels is another step towards producing clean energy in India. It also has the additional benefit of boosting farm incomes

An industrial-scale biofuel plant in India (Photo by Flickr)

In an effort to reduce its dependence on imported oil and gas, the Indian government in May approved a national biofuels policy that allows ethanol production from damaged farm produce and other starch-containing materials such as corn, cassava and sugarcane.

The approval by the cabinet of ministers of the National Policy on Biofuels on May 16 has evoked an encouraging response from industry experts. The policy takes a series of positive steps to drive the biofuel sector forward, they said. It would also go a long way to boost earnings of farmers, who have been facing a crisis in recent times.

"The thrust in this policy on second generation (2G) ethanol as a major biofuel option is expected to increase farmer income significantly by creating demand and value for crop residue like rice straw, cotton stalk, castor stalk and sugarcane trash, Anjan Ray, Director, Indian Institute of Petroleum (IIP), told indiaclimatedialogue.net.

"Farmers will be encouraged to grow a variety of different biomass as well as oil seeds on their marginal lands, as inter-crop and as second crop wherever only one crop is raised by them under rain fed conditions," the policy noted.

At the same time, it is important to enable the creation of facilities for the biofuel sector to develop, according to Charmaine Fernandes Sharma, co-founder and partner of Observing I Ecotech, a green technology company. "This involves development and implementation of new technologies, enabling and encouraging entrepreneurship in these sectors, removing the blocks in prevailing purchase systems and facilitating marketing of these biofuels," she

told indiaclimatedialogue.net. “If the marketing and distribution is made easier, a number of large industries will enter this field, which will result in the growth of the sector and, ultimately, the increased use of green fuels.”

The essence of the policy is to do everything in India, explained Sandeep Chaturvedi, president, Biodiesel Association of India, an industry lobby group. “If everything goes through as per this policy, most of the pollution-related problems in Delhi would be a thing of the past,” Chaturvedi said. “This is because what we are aiming at is the entire agricultural residue that is being burnt would be converted into 2G ethanol.”

Biomass pellets

Industry insiders also predict a sizeable production of biomass pellets to emerge due to the policy intervention, along with the technology to produce the pellets at a low cost. The state-aided agriculture research centres should take a lead in this, Fernandes Sharma said.

Bio pellets are an excellent idea, says Ray. “A large amount of biomass stubble is anyway being burned by farmers, especially in some north Indian states, to clear the field and sow the next crop. Biomass pellets also reduce the lifecycle carbon dioxide emissions and toxic sulphur oxides emissions when co-fired with coal,” he told indiaclimatedialogue.net. “Suitably selected, they can also be beneficial to reduction of fly ash from coal-fired boilers.”

Farm produce

On issues such as waste agricultural produce from states like Punjab being used to convert it into biofuel instead of burning it, Ray says that several new technological possibilities have emerged from conversion of crop stubble into biofuels. “At CSIR-Indian Institute of Petroleum, in collaboration with the European Bioenergy Research Institute of Aston University, UK, we expect to launch the Pyroformer, a truck-mounted machine that will travel to the farmer’s field and convert the stubble into a fuel useful locally for brick kilns, lime kilns and small industrial furnaces, or for collection at a central point to partially substitute crude oil requirements of petroleum refineries.”

Fernandes Sharma suggests that it is not advisable to extract the stubble by mechanical methods since it would release soil carbon into the atmosphere. Other traditional methods of using the stubble to create compost have to be revisited and adopted in other to treat the problem of crop stubble, she said.

Issues with feedstock

Up until now, the biofuels programme in India was largely impacted due to non-availability of domestic feedstock for biofuel production. On whether this policy will help address this issue, Ray believes that the policy document dwells on the development of the next generation biofuel conversion technologies based on new feedstock and promote domestically available feedstock exploring, utilising the country’s biodiversity. “It will be important to create sustainable support mechanisms for investors in feedstock development, as the US, the European Union, China and Brazil have shown,” he said.

Fernandes Sharma said there is considerable feedstock for production of biofuels from secondary resources of other industries. “These have to be assessed, tested and quantities ascertained, but there is no agency undertaking such methodical assessment studies,” she told indiaclimatedialogue.net. “There is a huge potential for farmers to grow feedstock yielding biofuels in the periphery of their farms and thereby have a secondary source of income.”

Ray said reducing oil imports is a priority area for the policy. India imported about 220 million tonnes of crude oil in the last fiscal year. “Quite a bit of the agricultural waste in India is

burned in the field and causes significant air pollution," he pointed out. "It can provide over half of our carbon requirement if properly harnessed and converted to alternative fuels."

"It is not at all unreasonable to set a policy target of 10% reduction in crude oil imports," he said. "Ethanol blending from first-generation sugarcane-based ethanol has seen some success in recent years and is poised to achieve 5% average blending levels in the petrol pool on a nationwide basis."

On the biodiesel front, the policy depends mainly on the collection of used cooking oil. Currently, used cooking oil is a banned item which nobody can buy, sell or trade. This ban must go, Chaturvedi suggested. "The Directorate General of Foreign Trade will have to amend the Used Cooking Oils classification so that it becomes a freely traded commodity with an end-use verification," he said. However, Ray said cooking oil should not be reused in cooking since toxic and cancer-causing components develop with repeated reuse.

Meeting targets

Unlike solar and wind energy that have a sizeable contribution towards India's target of 175 GW, biomass, in comparison, has just 10GW. "It will be a relatively small contributor to the power scenario, though it has potential to replace at least the fossil fuel being used in diesel generators and pumps," Ray said. "The major orientation of the policy is towards transportation fuels. Given that a large component of our crude oil imports is driven by demand for diesel and petrol, as also jet fuel and cooking gas, the approach of the new biofuels policy towards replacing these with a wide, technology-neutral suite of alternative fuels appears both rational and realistic."

However, proper implementation is crucial, he said. Supply-side aspects, including blending and handling infrastructure for a more complex future suite of fuel options, and issues on the demand side from the automotive sector, railways, tractor, heavy machinery producers and telecom tower companies must be taken into account and addressed consultatively, he said.

A policy is essentially a resolution and not a solution, averred Fernandes Sharma. Therefore, while the biofuels policy points out a direction, solutions have to emerge from entrepreneurial activity, from government advisories to farmers, and from assistance in advice on multi-cropping, she said.

THE HINDU BusinessLine

FSSAI unveils initiative to collect, convert used cooking oil into biofuel

Our Bureau New Delhi | Updated on August 13, 2018 Published on August 10, 2018

64 companies in 101 locations will enable collection of used cooking oil

FSSAI wants businesses using more than 100 litres of oil for frying to maintain a stock register and ensure that used cooking oil is handed over to registered collecting agencies - bgton

The Food Safety and Standards Authority of India (FSSAI) on Friday launched RUCO (Repurpose Used Cooking Oil), an initiative that will enable collection and conversion of used cooking oil to bio-diesel. The initiative has been launched nearly a month after the food safety regulator notified standards for used cooking oil.

FSSAI may also look at introducing regulations to ensure that companies that use large quantities of cooking oil hand it over to registered collecting agencies to convert it into biofuel.

Under this initiative, 64 companies at 101 locations have been identified to enable collection of used cooking oil. For instance: McDonald's has already started converting used cooking oil to biodiesel from 100 outlets in Mumbai and Pune.

The regulator believes India has the potential to recover 220 crore litres of used cooking oil for the production of biodiesel by 2022 through a co-ordinated action. In a statement, Pawan Agarwal, CEO, FSSAI, said, “While biodiesel produced from used cooking oil is currently very small, but a robust ecosystem for conversion and collection is rapidly growing in India and will soon reach a sizable scale.”

“FSSAI wants businesses using more than 100 litres of oil for frying, to maintain a stock register and ensure that UCO is handed over to only registered collecting agencies. There is a possibility that a regulation will be developed on these lines,” he added.

According to FSSAI regulations, the maximum permissible limits for Total Polar Compounds (TPC) have been set at 25 per cent, beyond which the cooking oil is unsafe for consumption.

In partnership

FSSAI is also working in partnership with Biodiesel Association of India and the food industry to ensure effective compliance of used cooking oil regulations, the statement added. It is also going to publish guidance documents, tips for consumers and posters in this regard. It is also conducting several awareness campaigns through its e-channels.

“FSSAI has additionally launched a micro-site to monitor the progress of the collection and conversion of used cooking oil into biodiesel,” the statement added.

ZEENEWS हिंदी

बायोडीजल

यूज्ड कुकिंग ऑयल से बनेगा बायोडीजल, 55 रुपये प्रति लीटर होगा रेट!

अगर आप अभी तक यूज्ड कुकिंग ऑयल को ऐसे ही फेंक देते हैं तो अब जान लीजिए इससे बायोडीजल बनाने की तैयारी चल रही है.

नई दिल्ली/ खुशबू श्री : अगर आप अभी तक यूज्ड कुकिंग ऑयल को ऐसे ही फेंक देते हैं तो अब जान लीजिए इससे बायोडीजल बनाने की तैयारी चल रही है. दरअसल एफएसएसएआई (FSSAI) यूज्ड कुकिंग ऑयल से बायोडीजल बनाने की तैयारी में है. इसके लिए RUCO प्रोजेक्ट को लॉन्च किया गया है. इस प्रोजेक्ट में गाइड लाइन तैयार की गई है. इस गाइड लाइन में कहा गया है कि यूज्ड कुकिंग ऑयल को तीन बार से ज्यादा इस्तेमाल नहीं करें क्योंकि इससे ज्यादा इस्तेमाल करने से तेल में टोटल पोलर कंपाउंड की मात्रा बढ़ जाती है. यह सेहत के लिए काफी हानिकारक है.

ऑयल कलेक्शन के लिए 60 एजेंसियां सामने आईं

गाइडलाइन में कहा गया है कि तीन बार इस्तेमाल किए जाने के बाद जो तेल बच जाएगा उसे इकट्ठा कर बायोडीजल बनाया जाएगा. यूज्ड ऑयल के कलेक्शन के लिए देश के 101 शहरों से 60 एजेंसियां सामने आई हैं जो तीन बार से ज्यादा इस्तेमाल कुकिंग ऑयल को इकट्ठा करेंगी. खासतौर से मल्टीनेशनल रिटेल

आउटलेट पर ईटिंग आउटलेट से वेस्ट तेल इकट्ठा किया जाएगा. इंडियन बायोडीजल एसोसिएशन इस्तमाल किये गए तेल को बायो डीजल में कन्वर्ट करेगा.

कई रिफाइनरी भी इस काम मे लगी

इसके अलावा कुछ राज्यों बायोडीजल की मदद ली जाएगी. राज्यों की कई रिफाइनरी भी इस काम मे लगी हैं. यूज्ड कुकिंग ऑयल 30 से 35 रुपये लीटर बिकेगा जिसे खरीदने के लिए एक इको सिस्टम तैयार किया जा रहा है जिसकी मदद से बड़े होटलों रेस्टोरेंट और ईटिंग जॉइंट से सिस्टेमेटिक तरीके से इस्तेमाल किया हुआ तेल इकट्ठा किया जाएगा. हालांकि घरों से इकट्ठा करने के लिए सिस्टम बनाने में एक काफी वक्त लगेगा.

इस्तेमाल किए गए तेल पर लगभग एक डेढ़ साल से काम करने के बाद FSSAI ने यह फैसला लिया है. कुकिंग ऑयल से बना बायोडीजल लगभग 55 प्रति लीटर बिकेगा.

अमर उजाला

इस्तेमाल हो चुके खाने के तेल से चलेंगी गाड़ियां, एफएसएसएआई ने शुरू की बॉयोडीजल बनाने की मुहिम

डिजिटल ब्यूरो, अमर उजाला, नई दिल्ली Updated Mon, 13 Aug 2018 11:28 PM IST

- छोटे रेस्टोरेंट, होटल, ढाबा, फूड प्लाजा और स्ट्रीट वेंडर्स समोसा, पकोड़े आदि तलने के बाद बचे हुए तेल को नाली में नहीं बहा पाएंगे। पर्यावरण को बचाने के लिए एफएसएसएआई अब इस्तेमाल हुए खाद्य तेल से गाड़ियां चलाने की योजना बना रहा है। प्राधिकरण ने इसके लिए 'रुको' अभियान के तहत मैकडॉनल्ड्स जैसे बड़े रेस्टोरेंट्स के साथ गठजोड़ किया है।
- **जले हुए तेल से होता है प्रदूषण**

  भारतीय खाद्य संरक्षा एवं मानक प्राधिकरण (एफएसएसएआई) के सीईओ पवन अग्रवाल के मुताबिक रेस्टोरेंट और होटलों में खाने का सामान तलने के बाद इस्तेमाल हुए खाने के तेल को अभी तक नालियों में बहा दिया जाता था, जिससे प्रदूषण की समस्या उत्पन्न होती थी। जिसके बाद प्राधिकरण ने होटलों और रेस्टोरेंट्स को बॉयो डीजल बनाने की सलाह दी थी। उन्होंने बताया कि फिलहाल काफी कम मात्रा में इस्तेमालशुदा खाद्य तेल से बॉयो डीजल बनाया जा रहा है। लेकिन जिस तरह से परिस्थितयां बदल रही हैं, उससे आने वाले वक्त में यह बड़े पैमाने पर पहुंच जाएगा।

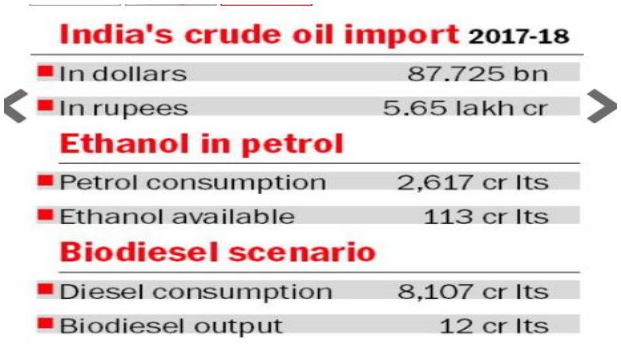
  स्वास्थ्य के लिए हानिकारक है इस्तेमालशुदा तेल

  अग्रवाल का कहना है कि खाद्य पदार्थो को तलने के बाद जो तेल बचता है, वह दोबारा इस्तेमाल करने योग्य नहीं रहता है। दोबारा इस्तेमाल करने से स्वास्थ्य पर विपरित प्रभाव पड़ सकते हैं। यही वजह है कि बचे हुए तेल को नालियों में बहाना पड़ता है। उनकी योजना 2022 तक 220 करोड़ लीटर इस्तेमाल कुकिंग तेल से बॉयोडीजल बनाने की है। इसके अलावा एफएसएसएआई ने आगे बढ़ते हुए तलने के लिए 100 लीटर से ज्यादा खाद्य तेल इस्तेमाल करने वाले व्यवसायिक प्रतिष्ठानों से एक स्टॉक रजिस्टर बनाने के लिए कहा है, ताकि अधिकृत एजेंसियों को ही इस्तेमालशुदा खाद्य तेल सौंपा जा सके।

The Tribune
VOICE OF THE PEOPLE

Posted at: Aug 20, 2018, 12:49 AM; last updated: Aug 20, 2018, 12:49 AM (IST)ENERGY: BIOFUEL STRATEGY

Quest for ENERGY



Biodiesel from used cooking oil is a healthy and environment-friendly option, else it is sold to the roadside vendors for frying snacks, which poses threat to health of gullible citizens, says Vijay C Roy

INDIA saved Rs 4,000 crore worth of foreign exchange last year due to ethanol blending in petrol. It plans to take this figure to about Rs 12,000 crore in the next four years. The number appears small compared to the country's total crude oil import bill of $87.73 billion (Rs 5.65 lakh crore) in 2017-2018. But, it is an encouraging beginning.

It is heartening that ethanol blending in petrol has grown by over 270 per cent in just four years — from 38 crore litres in 2013-14 to about 141 crore litres in 2017-18. The government aims to produce nearly 450 crore litres of ethanol in the next four years as its target is to increase ethanol blending to 10 per cent by 2022. It wants to achieve a 20 per cent ethanol blending and 5 per cent biodiesel blending by 2030.

India is the third largest fossil fuel importer after the US and China. It needs to cut its dependence on imported energy. Biofuel is a viable alternative that would not only ensure additional income for Indian farmers but also accelerate industrial growth. Above all, it will help to proportionately reduce the anxiety over the volatility of international fuel prices.

Fossil fuel is finite. The global uproar about the rapidly-declining reserves of fossil fuels has prompted power producers to explore commercially viable and environmentally-friendly alternatives. One of the most viable options is biofuel. The use of biofuels will reduce our energy import dependence. Currently, India imports more than 80 per cent of the crude oil it processes. Shifting the fuel consumption profile to biofuels derived from domestic feedstocks would lead to a decrease in this dependence on crude oil imports.

One of the most promising biofuels is ethanol. It is extracted mainly from sugarcane molasses. It is being used since 2003 with a twin purpose - reducing India's dependence on energy

imports and providing a remunerative price to sugarcane farmers. The policy, however, lacks political will due to various lobbies. However, in December 2014, the cabinet approved the usage of non-food feedstocks besides molasses as a source of ethanol that could be blended in fuel.

The government wanted to expand the policy to other agricultural produce. In 2016, Minister of Road Transport and Highways Nitin Gadkari gave the idea of making ethanol from bamboo to boost the economy of the North East. The idea was to create additional income for the inhabitants and set up industries that would have generated employment opportunities. The minister had brought the idea from Italy and he was convinced that the North East could supply 40,000 litres of second-generation ethanol. The second-generation ethanol can also be produced from rice straw, wheat straw and cotton straw.

Ethanol production in India is inadequate. In 2017-18 (October-September), sugarmills were contracted to supply a record 113 crore litres. The previous record was of 111 crore litres in 2015-16. It is estimated that mills would realise over Rs 5,000 crore from the sale of ethanol to oil marketing companies.

The government aims to achieve 10 per cent blending of ethanol with petrol. For that 313 crore litre of ethanol is required, says the Indian Sugar Mills Association. Unless the supply of ethanol is increased from sources other than sugarcane, this target is elusive.

"With the supply of 66.5 crore litres of ethanol in 2016-17, we had 2.1 per cent blending in petrol," Oil Minister Dharmendra Pradhan said at a conference on advanced biofuels. According to the minister, the increased production of ethanol in 2017-18 (139.5 crore litres) would help the government achieve only four per cent blending.

In the case of biodiesel, palm stearin, acid oil, fatty acids and used cooking oils are the sources. The total biodiesel production in the country is likely to touch 12 crore litres this year compared to 0.75 crore litres last year. Compared to India's 8,100 crore litre diesel consumption annually, the current biodiesel production is insignificant.

According to Biodiesel Association of India president Sandeep Chaturvedi, there's a yawning demand-supply gap. "We are heavily dependent on palm stearin for making biodiesel, despite the fact that used cooking oil is a great source of biodiesel. The recent initiative by the Food Safety and Standard Authority of India (FSSAI) to launch RUCO (repurpose used cooking oil) is likely to boost biodiesel," says Chaturvedi.

RUCO is an ecosystem that will enable the collection and conversion of used cooking oil to biodiesel. India is one of the largest consumers of vegetable oil and so has the potential to recover almost 220 crore litres of used cooking oil for the production of biodiesel by 2022.

India generates around 3-4 million tonnes of used cooking oil annually. Therefore, it has immense potential. Currently, used cooking oil is sold to roadside vendors for frying, which poses a threat to citizens' health.

The use of biodiesel is, however, insignificant. In 2017-18, fuel retailers procured 4.36 crore litres of biodiesel against 3.59 crore litres in the previous year. For 2018-19, the target is to procure 8.63 crore litres of biodiesel. It is expected that procurement may go up as the GST

rate on biodiesel has been reduced from 18 per cent to 12 per cent in January, this year. The industry, however, is demanding that the tax be brought on a par with ethanol.

Considering the huge potential, oil marketing companies are in the process of setting up a dozen second-generation bio-refineries at an investment of around Rs 10,000 crore across the country. An encouragement to biodiesel will help reduce the consumption of fossils fuels, generate rural employment and protect environment.

In this direction, the Centre recently unveiled a comprehensive biofuel policy, which, among other things, allows farmers to divert surplus crops for biofuel production. The National Biofuels Policy-2018 also seeks to expand the range of feedstock available for ethanol production beyond sugar molasses. Sugarcane juice, sugar-containing crops like beet, sorghum, corn and cassava, and damaged grains unfit for human consumption, such as rotten potato, wheat and broken rice, can be considered for ethanol production. The policy will offer a mechanism to dispose of municipal solid waste by converting it into drop-in fuels.

Biofuel policy

- Ethanol from sugarcane, corn, cassava, damaged food grains, rotten potatoes
- Use surplus food grains for production of ethanol
- Rs 5,000 crore viability gap funding for bio-refineries

Expected benefits

- 1 crore lts of E-10 saves Rs 28 crore of forex
- 150 crore lts ethanol saves forex worth Rs 4,000 crore
- 1 cr lt E-10 saves 20,000 tonne of CO_2 emissions
- A solution to 62 MMT of municipal solid waste generated annually
- 1 bio-refinery can generate 1,200 jobs

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