



**Sunflower Oils:  
Choose the best  
brand here**

Gone are the days of using only one type of cooking oil. Today, we know the benefits of using different types of edible oils ranging from rice bran, olive and sunflower oil. We know the pain points of choosing the best from almost all the equals, yet what makes one brand the best? Hence this report! It came out of a detailed, scientific test method being carried in a NABL accredited lab. We carefully reviewed eight brands on different parameters including saturated fat, MUFA, PUFA, Trans fat to name a few. Let's check it out.

*A Consumer Voice Report*

Edible vegetable oils serve as an important source of energy in the diet of people, supply specific nutritional requirements. Among the edible oils, sunflower oil is used for regular cooking medium/deep-frying food items. The oils are refined

through various refining processes viz. expression, solvent extraction process etc. The tests were conducted following requirements specified in the Food Safety and Standards Regulations (FSSR) and Indian Standard IS: 4277-2014.

### How we test

Each brand was evaluated on quality and purity parameters including saturated fatty acids, MUFA, PUFA, trans fat, moisture and insoluble impurities, refractive index, Iodine value, acid value, saponification value, unsaponifiable matter,

presence of non edible oils among others.

### Brands tested

The following table is a ready reference before you hit the purchase button, as it tells you which brands scores what.

Rank	Scores out of 100	Brand	Quantity, gm	MRP, Rs.	Best Before, Months	Fortified/ contains vitamin (Claimed)	Manufacturer/ marketer
1	88	Sundrop	2 liters ( 1L (910 gm)× 2	450	9	A & D	Agro Tech Foods Ltd.,
2	87	Dhara	1L (910 gm)	235	9	A & D Enriched with PUFA	Mother Dairy Fruit & Vegetable Pvt. Ltd.,
2	87	Dalda	1L (910 gm)	210	9	A,D & E	Bunge India Pvt. Ltd.
2	87	Emami	1L (910 gm)	245	9	A,D & E	Emami Agrotech Limited,
2	87	Freedom	1L (910 gm)	165	6	A,D & E Rich in Omega 3	Gemini Edible & Fats India Pvt. Ltd.,
2	87	Nature Fresh	1L (910 gm)	220	9	A,D & E	Cargill India Pvt. Ltd.,
3	85	Fortune	1L (910 gm)	245	9	A & D	Adani Wilmar Ltd.,
4	85	Gemini	1L (910 gm)	225	9	A & D	Cargill India Pvt. Ltd.,

Rating: >90 – Very good \*\*\*\*\*, 71-90- Good \*\*\*\*, 51-70- Average \*\*\*, 31-50- Poor \*\*, up to 30 – Very Poor \*

### CV recommendations

**Top Performer**

**Sundrop**

**Value for Money Brand**

**Freedom**



### Key findings

- Based on the overall test findings, brand Sundrop is the top performer followed by Dhara, Dalda and Emami
- Freedom is value for money brand
- MUFA was highest in Sundrop and lowest in Nature Fresh

## Comparative Product Testing

- PUFA was highest in Nature Fresh and lowest in Sundrop
- In specific gravity test, all brands except Sundrop was found out of specified limits of Agmark standard
- Saturated fat was found highest in Emami and lowest in Gemini
- Trans fat was highest in Sundrop and lowest in Nature Fresh
- Most of the sunflower oils claims fortified with vitamin A, D and E
- None of the brand was found adulterated with argemone and mineral oil
- Most of the brands had high difference in their MRP and retail price
- All the brands have met the requirements of national standard (FSSAI) and safe for consumption.

## Comparative Performance Score

Brands	Wt. %	Sundrop	Dhara	Dalda	Emami	Nature Fresh	Freedom	Fortune	Gemini
Moisture & Insol. impurities	5	5.00	4.80	4.60	4.80	4.60	4.60	4.40	4.80
Saponification value	5	4.53	4.67	4.78	4.74	4.61	4.76	4.60	4.58
Acid value	6	5.46	5.22	4.62	5.82	5.88	6.00	4.02	4.02
Iodine value	7	5.69	5.48	5.77	5.26	5.12	5.27	5.27	4.91
Unsaponifiable matter	6	5.22	5.22	5.58	5.70	4.86	5.10	4.98	5.10
Refractive Index	5	4.1	4.1	4.2	3.8	3.9	4.0	3.9	4.0
Non edible oils (Argemone & Mineral oil)	6	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Flash point	5	4.70	4.50	4.40	4.60	4.40	4.60	4.70	4.40
Specific gravity	5	4.25	3.95	3.95	3.35	3.35	3.65	3.35	3.35
Peroxide value	5	4.50	4.25	5.00	4.98	4.75	4.50	4.50	4.50
Hexane	4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Saturated fatty acids	7	5.15	4.91	4.97	4.42	4.85	4.84	5.28	5.37
MUFA	10	10.00	8.02	8.99	7.54	6.74	8.90	8.28	8.26
PUFA	10	6.69	8.70	7.69	9.09	9.98	7.76	8.49	8.47
Trans fatty acids	5	3.68	4.60	3.83	4.28	4.75	3.73	4.48	3.73

Sunflower oil extracted from the seeds of sunflowers is known as sunflower oil. Sunflower oil is a rich source of linoleic acid which is good for heart patients. It has a high quantity of vitamin

E, in the form of alpha-tocopherol, which makes it excellent for being used in cooking. It has a high smoking point, which means that sunflower oil holds on to its nutritional content at higher



**BEST SUNFLOWER COOKING OIL**

temperatures. Agmark and Indian Standard (IS 4277:2014) though prescribes grades of the oil, both grades are recommended for edible purposes.

**Test parameters & results**

Fatty Acid Profile| Saturated Fatty Acids| MUFA| PUFA| Trans Fat| Moisture and Insoluble Impurities| Refractive Index| Acid Value| Saponification Value| Unsaponifiable Matter| Unsaponifiable Matter| Iodine Value| Flash Point| Specific Gravity| Per Oxide Value| Argemone Oil| Mineral Oil| Hexane| Packing| Marking| Physical Observations| Net Quantity

- **Fatty acid composition**

All edible oils have virtually the same fatty acid content but the proportion of different types of Fatty acids varies from one type of oil to another. Sunflower oil contains approximately 15% saturated, 85% unsaturated fatty acid. Fats are classified in unsaturated (MUFA & PUFA) and Saturated Fats. An average person should limit the saturated fat

intake to not more than 8-10 percent. Eating a lot of saturated fat can increase the level of bad cholesterol (low density lipoproteins - LDL) in the blood.

- **Saturated fatty acids**

Saturated fats are unhealthy fats. These fats are most often solid at room temperature. Too much saturated fat in your diet can lead to heart disease and other health problems. Eating too much saturated fat in your diet can raise “bad” LDL cholesterol in your blood, which can increase the risk of heart disease and stroke. Saturated fat generally comes from meat, dairy products, as well as coconut and palm oil etc. Saturated fat was highest in Emami and lowest in Gemini and Sundrop.

- **MUFA (Monounsaturated Fatty Acids)**

MUFAs are a healthy type of fat. MUFA and PUFA as per the dietary recommendation helps in biochemical processes associated with nerves, brains, heart, digestion, and cell maintenance. MUFA lower the level of



bad cholesterol (LDL) in the blood and raise the good cholesterol (HDL). MUFA was highest in Sundrop and lowest in Nature Fresh.

- **PUFA (Polyunsaturated Fatty Acids)**  
PUFA helps reducing bad cholesterol levels thereby lowering heart disease and related diseases. The sources of PUFA include walnuts, sunflower seeds, sesame seeds, peanut butter and peanuts, flaxseed, poppy seed and oil of avocado, olive and sunflower.

PUFA was highest in Nature Fresh and lowest in Sundrop.

- **Trans fat**  
Trans-fat: is produced by industrial process-partial hydrogenation of edible vegetable oil / oils. Trans fat is harmful to human health; hence, Edible oil shall not have Transfat and should not be consumed as part of our diet. Trans fat raises the bad cholesterol and lower the good cholesterol. Trans fat have been linked to heart diseases, overweight/obesity,

high blood pressure, diabetes and some types of cancers. Trans fat was highest in Sundrop and lowest in Nature Fresh.

- **Moisture and insoluble impurities**  
Presence of higher moisture content in edible oils leads to many deteriorative changes affecting the quality and shelf life of the edible oils and hence has to be below the prescribed limit given in FSSR. Moisture and insoluble impurities shall not be more than 0.1% as per BIS standard. The sunflower oil should be free from any kind of impurities which are insoluble in oil.

All the evaluated brands of sunflower oil met the requirement. Sundrop scored highest in this parameter.

- **Refractive index**  
Refractive index of oil is used to detect rancidity in edible oil. It should be in range of 1.4640-1.4691 at 40°C, however for imported oil, it shall be between 1.461-1.468. If reading is not falling in-between, means adulteration is there with other oils.



All the brands were within the specified limit. Dalda, Sundrop and Dhara scored highest in this parameter.

- **Acid value**

Acid value indicates the proportion of free fatty acid present in oil. Acid value gives an idea about the age of the oil. High acid value indicates stale oil stored under improper condition. Rancid oil can develop harmful free radicals that cause long-term cell damage and potentially lead to the development of chronic diseases. Requirements of acid value shall be 6.0 max. as per FSS Regulation. However Agmark and BIS standards has requirement of 0.5. The acid value of all the brands was found within the limit.

- **Saponification value**

Saponification: is the chemical process that turns oil / fat into soap. Saponification value helps to detect the presence of other oils/fats. Saponification value of sunflower oil should be between 188–194. All the brands were found within the limit.

- **Unsaponifiable matter**

The term refers to material present in oils

and fats which, after saponification of the oil or fat by alkali, is extractable by solvent and remains non-volatile on drying. Unsaponifiable matter generally constitutes less than 1% in most oils and fats. Unsaponifiable matter includes those substances frequently found dissolved in fatty acids and drying oils.

Unsaponifiable matter shall not be more than 1.5 percent in sunflower oil.

All the tested sunflower oil brands were found within the limit.

- **Iodine value**

All vegetable oil and fat are composed of saturated and unsaturated fat. Iodine value is measure of the degree of unsaturation of oil and fat. The higher is the iodine value means oil is less stable and more susceptible to oxidation and rancidification which leads to off flavour in oil.

Iodine value for sunflower oil shall be between 100 – 145. All the tested brands were found within the specified limit. Dalda and Sundrop scored highest in this parameter.



- **Flash point**

Flash point is the lowest temperature at which a liquid can give off vapour to form an ignitable mixture in air near the surface of the liquid. It shall not be less than 250 ° C. Flash point of all the brands was found well above the specified limit. Sundrop and Fortune scored highest in this parameter.

- **Specific gravity**

Agmark standard has specified requirement of 0.913-0.918 for sunflower oil.

In this test, all brands except Sundrop were found out of specified limits of Agmark standard.

- **Peroxide value**

Concentration of peroxide in oil is useful for assessing the extent to which spoilage has advanced. Peroxide value is used as an assay for measuring the state of oxidation in oils and its value measures the oxidative rancidity or degree of oxidation of the fat/oil. Here, all the brands were found within the specified limit.

- **Argemone oil**

Argemone, yellow poppy, is a wild herb, which grows in fields and bears capsules full of brown black seeds. Argemone oil is very toxic and may cause eye disease leading to blindness. Regular consumption of it may also cause disease called epidemic dropsy, resembling wet beriberi.

Hence, Argemone shall be absent in sunflower oil. We did not find argemone oil present in any of the tested sunflower oils.

- **Mineral oil**

Mineral oil is from a mineral source, particularly a distillate of petroleum. It is classified as non-edible oil so it shall be absent in edible oil. Adulteration of vegetable oil is usually done by using mineral oils or any other cheaper oil.

As we tested the oils on this parameter, we found all the brands were free from this substance.

- **Hexane**

Hexane is used as a solvent for extraction

of edible oils from its seeds after cleansing and degreasing. It should not be more than 5 ppm. In our test, hexane was not detected in any brands up to the detection limit of 0.5 ppm.

- **Packing**

As per the standard, the packing of the sunflower oil should be done with food grade packing material. Also, the packing should not affect the oil properties and maintain the shelf life of the product. The tested sunflower oil brands were packed in 1 liter poly pack except Sundrop which has plastic bottle packing.

- **Marking**

The mentioned information should be clearly and indelibly marked in English or Hindi on the containers: a) name and trade-mark, type and grade of oil, b) batch number, month and year of manufacturer, c) free from argemone oil, d) nutritional information, e) best before, f) net quantity, g) standard mark if any h) green dot mark i) customer care details j) FSSAI license number k) MRP. All the brands have given necessary information on their labels.

- **Physical observations**

All the brands were clear and free from rancidity, suspended or other foreign matter and separated water.

- **Net quantity**

According to legal metrology (packaged commodity) rules for 1000-10000 ml tolerance allowed is 1.5 %. All the brands were found above the declared quantity.

### **Shelf life**

The declared shelf life of all tested brands is 6 to 9



months. If you buy pack of 5 liters or above, users must ensure that the oil remains stable within the consumption period.

### **Conclusion**

Based on the evaluation of the test results, it has been observed that all the brands tested, fulfilled the minimum requirements of national standards (FSSAI regulations). All brands were free from adulteration specially Argemone and mineral oils thus are safe for human consumption. Based on overall scores, all brands fall in good category. Brand Sundrop is the top performer followed by Dhara, Emami & Dalda. Freedom is value for money brand MRP 165 per liter.

### **Best way to match your oils for cooking**

It is beneficial to consume a mix of oils to maintain a balance between the fatty acids. All oils are good in one way or the other. It is advisable to use a combination of oils either by blending or by rotation. Use of reheating of oils should be avoided. When the oil reaches its smoking point, a lot of the nutrients are destroyed and it can sometimes form harmful compounds.