

前 言

我厂生产螺旋榨油机已有三十余年历史, 经验丰富, 设备齐全, 技术力量雄厚, 质量稳定, 产品畅销国内外, 享有信誉。本机可连续压榨各种植物油料及带壳果实, 如棉籽、大豆、菜籽及花生仁等。本机冷榨和热榨均可, 具有体积小轻便, 经久耐用, 结构简单, 易于装卸和搬运, 出油率高等特点, 深受广大用户欢迎。

FOREWORD

We have been producing oil press for over than 30 years. Now ShenqiuMachinery Plant (SMP) has accumulated abundant experience, sufficient equipment and strong technical support, products of which enjoy good reputation since they keep steady quality and have had a prosperous market in China and abroad.

The machine is able to press variety of oil-bearing plants and seeds with shells, e. g. Cotton seeds, soybeans, rape seeds and ground nuts etc. The machine can be used for cold as well as hot pressing, characterized by its small volume, light weight, durability, simple design, easy for handling and high productivity, hence, it is welcome by customers.

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一、本机的特点及性能

- (一) 结构简单, 体小轻便, 易于装卸和搬运。
 (二) 操作方便, 易于掌握, 劳动强度低, 经济效益高。

整机性能 (热榨)

| 油料品种 | 单位产量 (公斤/小时) | 出油率 (%) | 出油效率 (%) |
|------|--------------|---------|----------|
| 棉籽 | 50—60 | 12—14 | 65—72 |
| 大豆 | 28—37 | 10—16 | 61—65 |
| 花生仁 | 45—60 | 35—45 | 91—92 |
| 菜籽 | 45—60 | 30—38 | 82—85 |

1. Characteristics and Performance of the Machine

- (1) Simple design, small volume and lightweight, easy to handle and move.
 (2) Easy for operating, low labour intensity and high economical profit.

Performance Index (Hot Extruding)

| RawMaterial | Capacity (Kg/hr) | Output Rate (%) | Output Efficiency |
|--------------|------------------|-----------------|-------------------|
| Cotton seeds | 50—60 | 12—14 | 65—72 |
| Soy bean | 28—37 | 10—16 | 61—65 |
| Peanut Kern | 45—60 | 35—45 | 91—92 |
| Rape seeds | 45—60 | 30—38 | 82—85 |

二、主要技术参数

- (一) 榨膛直径 70 毫米
 长度 200 毫米
 (二) 榨螺轴直径 68.5 毫米
 长度 600 毫米
 转数 137—160 转/分
 (三) 排骨长度 200 毫米
 数量 甲型 8 根
 乙型 8 根
 (四) 榨螺轴与排骨的间隙 0.75 毫米
 (五) 配用动力 5.5 仟瓦
 转速 1440 转/分
 (六) 电动机皮带轮直径 120—140 毫米
 (七) 外形尺寸 (长×宽×高) 1000 毫米×538 毫米×1050 毫米
 (八) 全机总重量 140 公斤

2. Main Specifications

- (1) Press chamber diameter/length 70/200 mm;
 (2) Press screw diameter/length 68.5/600mm;
 Press screw speed 137—160rpm;
 (3) Square rods, quantity/length (Type A, B) 8/200mm;

| | |
|--|-------------------|
| (4) Clearance between screw shaft and rods | 0.75mm; |
| (5) Prime motor | 5.5Kw/1440rpm; |
| (6) Sheave diameter | 120—140mm; |
| (7) Dimensions (L×H×H) | 1000×538×1050 mm; |
| (8) Mass | 140 kg. |

三、工作原理及结构

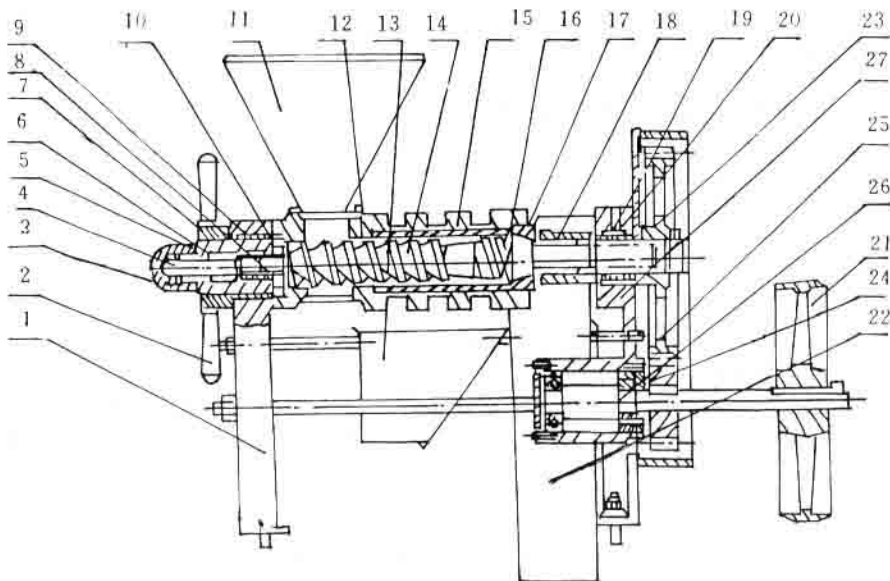
动力机经过减速(皮带轮及齿轮),传给榨螺轴。榨螺轴旋转时,将螺纹间的油料不断地向前推进;油料在前进过程中,受阻而破碎,另一方面由于榨膛与榨螺螺纹间的空间体积逐渐缩小,促使油料的密度增加,因而压力逐渐加大,产生了压榨的作用。本机由左、右机架、机体、榨螺轴、排骨、调节螺栓、进料斗、出饼圈、传动机构及润滑装置等另部件组成。(如图一)

1. 左支架,2.手柄,3.保护盖,4.螺钉(后尾丝),5.搬把,6.调节螺栓,7.防松螺帽,8.含油轴承,9.调节螺母,10.7206 轴承,11.料斗,12.机体,13.油盘,14.榨螺,15.甲型排骨,16.乙型排骨,17.出饼圈,18.排饼轮,19.轴套,20.含油轴承,21.平皮带轮,22.漏饼斗,23.大齿轮,24.小齿轮,25.208 轴承,26.主轴,27.右支架。

3. Principle and Structure

The power is transmitted to pressing screw shaft. via reduction(sheave and gears). During its rotating, the screw shaft pushes raw material moving forwards and break it; meanwhile, the space between chamber and screw is getting smaller and hence pressure is increased. The machine is sketched in Fig. 1.

1. Left bracket 2. Handle 3. Lid 4. Back screw 5. Handle 6. Adjusting screw 7. Nut 8. Bearing 9. Adjusting nut 10. Bearing 11. Hopper 12. Machine body 13. Oil pan 14. Press screw 15. Square rods, type A 16. Square rods, type B 17. Cake out-let ring 18. Cake outlet wheel 19. Bushing 20. Oil contented bearing 21. Pulley 22. Cake pan 23. Gear 24. Pinion 25. Bearing 26. Drive shaft 27. Right bracket

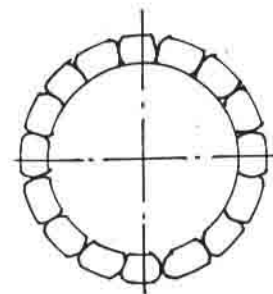


图一:68型动力螺旋榨油机

四、榨油机的安装拆卸及维修

(一)排骨、机体、出饼圈的安装:

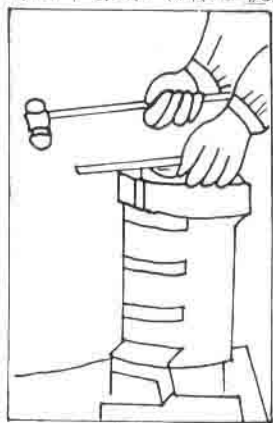
(1)排骨的安装:把机体立起,进料端向下,将机体内孔装排骨位置处,涂少许黄油,再将甲乙型排骨交错装入,使排骨紧贴机体内壁。(甲型排骨深油槽端向下)最后一根排骨用手锤轻轻打入,但不可太紧或太松,其松紧程度,应根据油料含油的多少而定,榨含油率低的油料,如榨大豆、棉籽排骨要紧,否则冒渣,影响出油率。以平锤打入为宜。含油率高的油料如花生、菜籽等排骨装入要松,以轻轻打入为宜。排骨装入后,检查排骨有无突起现象,若有突起,应用木棒、铜棒打平。



图二 排骨的排列

(2)出饼圈的安装:排骨装好后,将出饼圈旋在机体内螺纹上,并用搬杆旋紧。直到把排骨压紧为止。

(3)机体的安装:装好排骨和出饼圈后,用四个M18的螺栓把机体与左右支架松松的连接起来,然后将螺轴旋入榨膛,抵死(上紧)出饼口,先上紧出饼圈端两个螺钉,再使榨螺轴返回两扣,上紧进料斗端的两个螺钉,以保证机膛、榨螺轴,出饼圈的同轴度。(方法:用手转动皮带轮是否灵活)

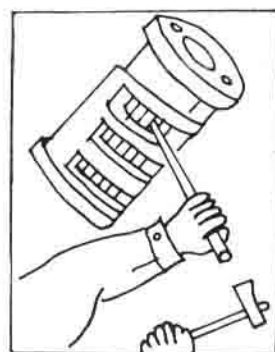


图三

(二)主要部件的拆卸方法:

(1)机体、排骨的拆卸方法:顺时针方向旋转调节螺栓,卸下榨螺轴、松下机体和机架的连接螺栓卸下机体。将机体竖立,出饼圈端向上,用搬杆反时针方向旋卸下出饼圈(图三)

(2)排骨的拆卸方法:将机体横放,然后将铁棍插进机体边槽抵住不代倒角的排骨(甲型排骨),用手锤敲去铁棍另一端卸下其中任意一根排骨(应打甲型排骨,切不可打乙型排骨)则其余排骨就自会松动,即可全部取出。(图四)



图四

(三)机器的润滑:

主轴两端的208轴承;榨螺轴两端的含油轴承及止推轴承处应经常保持有润滑油润滑;208轴承用黄油其它三处用机油。

(四)机器的维修:为延长机器的使用寿命,必须经常维护和修理。

(1)调整榨螺轴与机膛同心度,详见机体的安装方法。(2)定期清洗和检查滚动轴承及滑动轴承,并加润滑油进行保养。

(3)定期检查各机件磨损情况,(如榨螺轴、排骨、出饼圈等)及时修理和换新件。

4. Installment, Disassembly and Maintenance

(1) Installment of rods, machine body and cake outlet ring: A). Rods. Put the machine body vertically with its inlet end facing downwards, grease the inner wall of the chamber and then insert rods type A and B interlacedly contacting against the inner wall. Make sure the groove end of rods A must be put downwards. Last rod should be tapped in properly, neither too tight nor too loose. In general, raw material which contents less oil e. g. soy bean, cotton seeds etc. need to be tight, while material contents more oil, e. g. ground nuts and rape seeds need to be loose. However, after inserting, inner wall of rods should be smooth, any bulge has to be removed.

B). Cake outlet ring: the ring has to be screwed onto the body till rods being

pressed tightly.

C). Body: After installing rods and ring, connect the body and two brackets by four M18 bolts, then insert screw shaft into the chamber to reach cake outlet port. Tighten cake outlet ring by two bolts and then return for two circles, and then tighten two bolts at the inlet hopper. Finally, turn the belt sheave manually to assure they can be smoothly moved.

(2). Disassembly of main parts :

A). Body and cake outlet ring. Turn adjusting bolt clockwise and remove the shaft, then loosen the bolts which connect body and brackets. Put the body vertically and cake outlet rings upward, turn the ring counterclockwise and remove it. See Fig.3.

B). Rods. Lay the body horizontally, use iron bar and hammer to loosen one of type A rod, others will be easily taken out. See Fig. 4.

(2) Lubrication: Grease two bearings No. 208 in both ends of the shaft. While lubricate two oil content bearings and one thrust bearing.

(3) Maintenance of the machine; Maintenance needs to be carrying out timely to prolong its service.

A). Adjust alignment of screw shaft and chamber properly.

B). Clean and check bearings and bushings, lubricate them timely.

C). Inspect parts (e.g. screw shaft, rods, cake ring etc.) and replace in case needed.

五、安全规则及注意事项

- 1、运转中，禁止用手或铁棒送入料斗去疏通油料，只能用木棍，防止榨螺轴把手指切断。
- 2、运转中，不得用铁棍或螺丝刀去拨排饼轮，以防发生事故。
- 3、运转中不能把榨螺轴抵死出饼圈，以防毁坏另件。
- 4、正常运转时，将防松螺母拧紧，防止窜轴。
- 5、油料必须纯净，不能把石子或金属块入榨。
- 6、电动机必须接地。

5. Safety

- (1) During operating, hand or iron bar is prohibited to enter the hopper, only wooden rod is allowed to be used to stir the material.
- (2) During operating, to move cake outlet wheel by iron bar or screwdriver is prohibited.
- (4) During operating, to press cake ring only by screw shaft.
- (5) Raw material to be pressed should be clean, stone or metal are prohibited to go in.
- (6) Electric motor has to be earthed properly.

六、操作前的准备工作

(一) 拧紧每一个螺钉、螺帽、检查以上另部件有无松动和损坏。加注润滑油，转动一下皮带轮是否灵活，仔细检查另件间有无撞击现象。

(二) 油料中的一切杂质，如石子、铁块等必须清除干净，以免损块机器。

(三) 开车前，先调正榨螺轴与出饼圈的间隙。方法是先使榨螺轴向前抵死出饼圈，然后再倒退2—4转。

如上检查调正完毕后，开动机器空转5分钟，看是否有撞击与抵死等不正常现象，当你确定本机运转完全正常后，方可入料。

6. Preparation before Operating

- (1) Tighten every bolt, nut, check is there any loose or damage in the parts. Lubricate sheave and turn it to make sure it is movable or intervened with other parts.
- (2) Remove any foreign articles, e. g. stones; iron scraps etc. to avoid damaging the machine.
Before operating, adjust clearance between screw shaft and cake outlet ring by return the shaft for 2—4 circles when they touched against each other.
After adjustment, operate the machine idly for 5 minutes, make sure there is no any unusual sound, and then feed in.

七、榨油工艺过程及操作技术

(一) 各种油料的榨油工艺过程

棉籽——清选——压榨——棉籽饼——过滤
棉籽油

大豆——清选——压榨
头遍压榨 头遍豆油——过滤
头遍豆饼——破碎
二遍压榨 二遍豆油——过滤
二遍豆饼

花生——清选——压榨
头遍压榨 头遍花生油——过滤
头遍花生饼——破碎
二遍压榨 二遍花生油——过滤
二遍花生饼——破碎
三遍压榨 三遍花生油——过滤
三遍花生饼

菜籽——清选——压榨
头遍压榨 头遍菜籽油——过滤
头遍菜籽饼——破碎
二遍压榨 二遍菜籽油——过滤
二遍菜籽饼

(二) 各种油料作物入榨的操作技术:

(1) 开始上料从少到多, 视其出饼和流油情况, 调整出饼厚度, 以后连续喂入, 不能忽多忽少, 以免发生空车和噎车现象。

(2) 压榨时应严格控制出饼厚度, 数据如下。

头遍压榨时出饼厚度(参考数据, 单位: 毫米):

| | |
|----|-------|
| 棉籽 | 1—1.5 |
| 大豆 | 1—2 |
| 花生 | 2—2.5 |
| 菜籽 | 1—2 |

二遍压榨时出饼厚度(参考数据, 单位: 毫米):

| | |
|----|-------|
| 大豆 | 0.5—1 |
| 花生 | 1—1.5 |
| 菜籽 | 0.5—1 |

三遍压榨时出饼厚度(参考数据,单位:毫米):

花 生 1—1.5

(3)压榨过程中,机体温度上升到80℃左右时出油率才达到正常。

(4)在机器工作时,应以木棍勤捣进料斗,以防料斗堵塞和“搭桥”现象,以至空车和噎车;力求喂料均匀。

(5)停车前应停止喂入新的油料作物,但需喂入些饼渣把榨膛内残饼全部排出后方可抽出榨螺轴将榨膛内的饼渣全部清除干净。

(6)装拆榨螺轴时必须将榨螺轴托平,防止碰伤;卸下的榨螺轴必须立放,防止变形。

(三)一般故障的排除方法:

(1)排骨间隙跑渣过多,榨油过程中,排骨间隙少量跑渣是正常现象;若跑渣过多,则是由于个别排骨间隙过大或弯曲所致,必须卸下排骨,调直后重装,或更换新的(排骨间隙过大),使出饼圈端间隙都保持在0.04—0.05毫米范围内,如过大加长条铁皮。

(2)出饼不顺:导致出饼不顺的原因有二条:

- 1.由于出饼的厚薄不适宜,可以左右旋转调节搬杆来调整饼的厚薄。
- 2.由于榨膛里存有干饼,或有石子、铁块进入榨膛;这时可立即停车,抽出榨螺轴,检查和清除出饼圈和榨膛内的干饼杂物等,并根据出饼圈磨损情况修理或更换新件。

(3)“回油”现象:产生“回油”的原因有二条:

- 1.含油量较高的油料易产生“回油”,此时可以加些干饼混榨才能将油榨出。
- 2.排骨间隙过小产生“回油”,调整排骨间隙,按规格要求到适当为止。

7. Extruding process and Operation Technology

(1) Extruding process of several raw materials

Cotton seeds—cleaning—extruding—oil and cake—filtering;

Soy bean—cleaning—first extruding—first oil (filtering) and first cake (cracking)—second extruding—second oil (filtering) and cake;

Ground nuts—cleaning—first extruding—first oil (filtering) and first cake (cracking)—second extruding—second oil (filtering) and cake (cracking)—third extruding—third oil (filtering) and third cake;

Rape seeds—cleaning—first extruding—first oil (filtering) and first cake (cracking)—second extruding—second oil (filtering) and cake.

(2) Operation technology

A) Feeding rate should be adjusted as per cake as well oil output. However, feeding needs to be steady and gradually increases.

B) Cake thickness should be controlled, following figures are for reference:

For first extruding:

- | | |
|----------------|-------------|
| — Cotton seeds | 1 — 1.5 mm; |
| — Soybean | 1 — 2 mm; |
| — Ground nuts | 2 — 2.5 mm; |
| — Rape seeds | 1 — 2 mm; |

For second extruding:

- | | |
|---------------|-------------|
| — Soybean | 0.5 — 1 mm; |
| — Ground nuts | 1 — 1.5 mm; |
| — Rape seeds | 0.5 — 1 mm; |

For third extruding:

— Ground nuts 1 — 1.5 mm.

- C) During operating, temperature of the machine should be 80 degree C.
- D) Feeding should be carried out smoothly by wooden rod.
- E) Before stopping pressing, feeding needs to be stopped first, then feed cake dregs into the chamber to drive all of cake residue out, then remove screw shaft and clean it.
- F) Screw shaft needs to be disposed properly to prevent from scraping and kept vertically to avoid deformation.

(3) Removal of failures

- A) Too much cake dregs among rods. It is caused by lager clearance between rods or rod's bending. Adjustment should be carried out by shims and keep proper clearance of 0.04—0.05 mm.
- B) Cake outgoing blocked. Probably because of: a) Unsuitable cake thickness; or, b) Foreign articles e. g. stones, iron Particles. Machine then should be stopped immediately to adjust or repair/replace parts.
- C) Oil returning. Caused by, a) Pressing high oil content material, then dry cake should be added in; or b) Too small clearance between rods, then it needs to be adjusted.

八、各种油料的榨前处理

(一)棉籽

榨棉籽一般都是采取冷榨。要求棉绒短,最好是露出黑壳(脱去短绒的棉籽)。初榨时加料要少而慢,根据出饼,流油情况随时调整榨螺与出饼圈间隙,待饼厚在1—1.5毫米左右,流油顺畅时再加多。如果榨未脱绒的棉籽时,因为棉籽外壳有短绒,影响下料,必须用木棍帮助送料,注意不要用手指或金属棍,以免造成事故。

(二)花生仁

1、将花生仁热炒,当温度到100—110℃左右,趁热送入料斗进行热榨。榨两遍或三遍。

2、花生仁蒸1.5—2个小时(去掉内部胶),含水量要少于7.5%,试榨前须用其它原料将榨缝磨热(约在80℃)再榨,饼厚第一遍为0.7—1.5毫米。第二遍为1—2毫米。具体按花生仁的含油量而定,如含油量高,则可榨三遍,第一遍的饼厚一些以免回油。

(三)菜籽

1、菜籽的冷榨:将菜籽含水率调到7.5%—8.7%可投料入榨。

2、菜籽的热榨:将菜籽炒热到100—110℃时取样放在平板上,其上用一小块木板磨擦。(1)若菜籽壳,心分离,心成两片,说明水分合适。在入榨前加1—2%的水拌匀,入榨时流油顺畅,饼呈瓦块状;(2)若壳与心成粉状,说明菜籽太干,这样流油不畅油成糊状,榨不成,这时应均匀地加入适当的水份才能压榨;(3)若壳与心连在一起,说明菜籽太湿,入榨时油中有白色泡沫,流油也不顺畅,往往要压榨多次饼虽成形,但极软需要将菜籽再炒。

3、有些地方还要求油有香气,他们将菜籽炒过火,经本机初榨一遍,不让出油(粉碎);以后再用蒸气蒸后再榨。

总之,水份合适,出油率高,产量也高,油的质量也好,这是使用本机榨油的主要关键。

8. Pre-preparation of Several Raw Materials

(1) Cotton seeds

Normally cold extruding. Cotton seeds with short nap and black shell will be ideal. Firstly, feeding should be slow and then faster as per oil outgoing. Cake thickness should be kept in about 1 mm. When extruding seeds without ginning, feeding needs to be carried out by wooden bar, however, metal rod or bar is not allowed.

(2) Ground nuts

Heat ground nuts to 100 — 110 degree C, and then feed into the hopper to extrude for 2 — 3 times. Another option is, steam it for 1.5 — 2 hours and keep water content less than 7.5%. The chamber should be heated to 80 degree C before pressing. Thickness of the cake; first extruding 0.7 — 1.5 mm; second extruding 1 — 2 mm. Third extruding may be necessary in case of oil content is high. However, during first extruding, cake should be thicker to avoid oil returning.

(3) Rape seeds

Cold pressing: water content should be adjusted to 7.5 — 8.7 %.

Hot pressing: rape seeds to be heated to 100 — 110 degree C and put on a plate and scratched by a piece of wood; a) Add 1 — 2% of water to extrude in case of kern and shell separate. b) Moderate water should be added in case of shell and kern form powder. c) Multiple pressing and drying would be needed to remove water out in case of shell and kern stick each other.

People may require oil to be smelled fragrant, then to saute intensively and extrude, after steaming, press again. However, to keep proper water content is a key factor to make high quality oil.

九、油质的精炼

本机榨出来的毛油,一般比较浑的。这是因为里面不仅含有油渣和油泥,还有酸脂和磷脂,既影响食用,又影响储放。所以毛油必须精炼,现提供以下几种方法:

1、煮沸法:

将毛油过滤后,缓慢加热到沸点,并有少量水分的冒出,泡沫聚集于油面,撇去泡沫,待水分蒸发完毕将油倒入另外的缸里沉淀,这种油含水分低,有香气,颜色好,便于储放。

2、水化法:

将毛油过滤后,加热至 60—65℃,这时掺入 3—5% 的开水,边掺边搅,到油成黄色悬浮状时,再升温到 80—100℃,沉淀 12 小时左右即可,若彻底去掉水分,还可以加热到 110—140℃。水分时,油温和水温要一致,油温如低于 60℃ 易成浮化现象,磷脂不下沉。因此要求严格控制掺水量,搅拌均匀,并希望冷却速度要快。

煮沸法、水化法只适于花生、菜籽等生油的精炼,对棉油不合适。

3、棉籽油的精炼:

(1)毛油过滤后缓慢加热,用原油量的 1.5—2% 的苏打和 9—12% 的温水一起搅拌,当温度 100—110℃ 时,把油从火上取下,并将搅好的苏打溶液很快地洒到油里,立即有泡沫出现,停放一小时冷却后,撇去浮在油上面的泡沫,再沉淀数小时就成净油了。

(2)碱炼处理(火碱加水)

碱液的配方:一公斤火碱掺四公斤水,在 100 公斤的毛油中掺 8.5—9.6 公斤碱液。事先将毛油和碱液拌均后缓慢加热,边加热边搅拌,待温度达 60—70℃ 时停止加热,将油净放一段时间,除去油渣就成净油了。(其它油脂也可用碱炼处理)。

4. 盐析法:

这种方法是提取油渣的油用的,因油渣中含量很高,具体办法是将油加热至 80℃ 左右,在每百公斤油中加入饱和食盐水 2—3 公斤(盐水温度应在 60—70℃),边加边拌匀,升温到 100—110℃,待上层有浮油时,停止加温 and 搅拌,停放两天即可取出净油。

9. Oil Refinery

Oil extruded by the machine is not fine because of containing dregs, mud and fat, which could not be eaten, or storage. Refinery might be:

- (1) Boiling. After filtering, heat it until boiling and then skim foam. Drive all water and store it.
- (2) Heat oil till 60 — 65 degree C and mix 3 — 5 % of boiling water and stir, till forming yellow suspension liquid, then precipitate for 12 hours. Also, heat it to 110 — 140 degree C to drive all water out. However, to keep proper water content, and keep both water and oil temperature the same, will be critical. Certainly, cooling needs to be fast too.
- (3) However, above—mentioned methods are not suitable for cottonseeds. It needs to be warmed slowly and mixed by 1.5 — 2 % soda and 9 — 12 % warm water, stirring. When temperature reaches 110 — 140 degree C, adds soda solution in it, then cool for one hour, skim foam and precipitate for several hours, oil will be clean. Another way is, to make alkali solution by alkali 1, water 4; add the solution of 8.5 — 9.6 kg to 100 kg course oil. Then heat it slowly, stirring till 60 — 70 degree C. Keep it for several hours, skim dregs, then oil will be clean.
- (4) Heat oil to 80 degree C, add 2 — 3% saturated salt solution (60 — 70 degree C), stirring, heat up to 100 — 110 degree C. Keep for two days, clean oil could be skimmed out.