



AGRICULTURE FILMS

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AGRICULTURAL FILMS

The usage of plastics in the agriculture industry is growing every day. PlasticKar is one of the leading manufacturers of agriculture films in Iran, which has been producing and supplying a wide range of Agriculture Films and Bags for many years.

These films are produced in various width and thickness using different polymeric compounds based on their application.

PlasticKar's agricultural films include:

- Irrigation Roll
- Greenhouse Film
- Greenhouse Thermal Sheet
- Low-Tunnel Film
- Mulch Film
- Soil Disinfection Film
- Vineyard Cover
- Banana Bunch Cover



By using a variety of additives, it possible to create specific features in agricultural films.

Some of these additives improve the product durability and life-time, while some others enhance the diffusion, thermal and mechanical properties.



Below are some of the additives and their effects:

Anti-Dust

Facilitate the removal of dust, soil and dirt stuck on the outer film surface with rain or a simple wash.

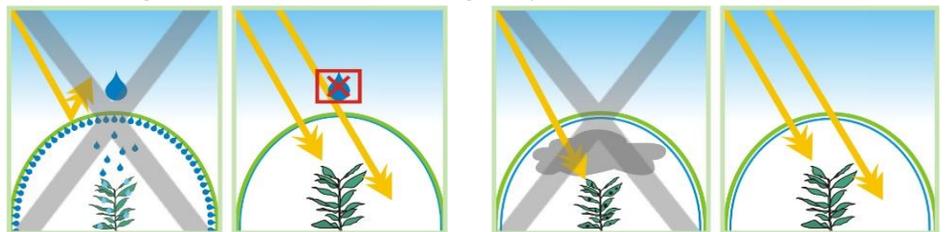
Preventing the reduction of light transmitted through the greenhouse cover.

Anti-Fog Anti-Drip (AF)

Reduce surface tension of condensing water vapor, so that condensation trickles down the plastic wall of the greenhouse film, preventing:

Damage and disease caused by water dripping blooms and leaves.

- The need for pesticides
- Scorching of plant leaves caused by sunlight on water drops
- Reduction in light availability caused by water droplets on greenhouse film surface, resulting in earlier harvest and higher yield



This additive helps the absorption of infrared radiation and reduces the temperature loss at night.

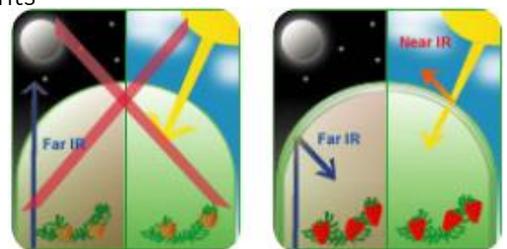
Some features of this additive include:

- Protection against freeze and low temperature
- Significant energy savings
- Earlier harvest, higher yield and better quality and uniformity of crops
- Reduced evapotranspiration, which maintains taste and product quality

Infra-Red (IR)

Reduces internal temperature during the day by blocking the near infrared rays (NIR) entering the greenhouse, and prevents

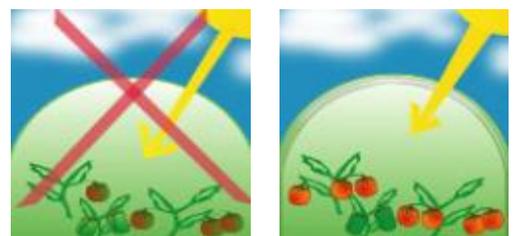
temperature loss during the night by creating a barrier to the far infrared radiation (FIR) leaving the greenhouse.



By adding EVA copolymer, the greenhouse film will benefit from the following advantages:

- Increase in transparency due to a reduction in crystalline patterns.
- Enhancement in mechanical and thermal properties of the film.
- Improvement in film flexibility and durability.
- Increase the film heat resistance on metallic greenhouse structure (frame).

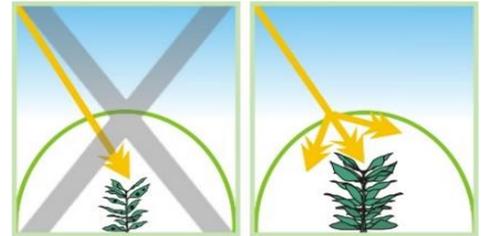
EVA Copolymer



Light Diffusion (LD)

Breaks sun radiation into a multitude of rays, optimizing the even spread of light within the greenhouses, therefore:

- Increases efficiency of photosynthesis
- Decreases phototropism
- Decreases potential sunburn of blooms and Leaves
- Decreases the plants self-shading



It should be noted that films containing this additive often looks opaque.

UV-Stabilizer

This material is the **most widely used additive** in agriculture films.

UV stabilizers are added to protect different polymers against UV radiation. Therefore, this additive increases the lifetime of the film:

- Protection of greenhouse films up to 5 years against the sunlight and atmospheric destructive elements
- Stimulate the pollination of insects and bees

Based on the atmospheric conditions, geographical environment, required lifetime and the greenhouse film thickness, specific type and amount of UV additive will be used.

Disease Control Filter

This additive blocks UV sun rays (up to 380 nm) causing:

- Insects to lose visual ability inside greenhouses, preventing viral, fungal diseases and crop damage caused by white flies, aphids, red spiders, leaf miners, thrips and other insects.
- Substantial decrease in using agricultural pesticides.

It should be noted that disease control films should not be used in greenhouses requiring insect pollination.



IRRIGATION ROLL (WATERING PIPE)

Irrigation roll or watering pipe is a multilayer seamless PE film that is produced of LDPE, HDPE, UV-Stabilizer, etc. and is simply placed on the ground and connected to any water source including, pond, wellhead, or water canals and requires low water pressure. This is one of the fastest, easiest and most cost-effective irrigation methods.

Using irrigation rolls in row crops has several advantages:

- It saves water consumption by reducing bottom penetration and surface water evaporation. In this way, the row irrigation efficiency is improved and by removing the ground canals used in traditional irrigation, the area under cultivation is increased.
- They are very light, compact and easily portable.
- Installing and using this system is very simple. Also, the cost of maintenance is insignificant.
- It prevents the transfer of seeds and weeds through water flow to the farm, hence, reducing the cost of herbicides, spraying and mechanical removal of weeds in the field.
- Irrigation rolls prevent soil erosion.
- Irrigation rolls are able to handle the distribution and transfer of chemical fertilizers through the flow of water, which increases the efficiency of fertilizer usage.
- They can be produced without installation of the outlets (along the roll) and be used for water transfer in the factories, livestock farms and greenhouses. Pipes with outlets (along the roll) are very cheap compared to other modern irrigation systems, and their implementation is cost-effective for cultivation of most crops and even small farms.



Product Name	Irrigation roll
Other Names	Watering pipe, Lay flat irrigation hose, PE irrigation roll, Poly-Pipe Irrigation, Poly-Tube Irrigation
Application	<ul style="list-style-type: none"> ▪ Low-pressure irrigation in general construction projects, water transfer and drainage ▪ Irrigation in agriculture industry ▪ Surface irrigation systems
Features	<ul style="list-style-type: none"> ▪ Flexible ▪ Easily packed and carried (during work and at the end of the season) ▪ Resistance against ambient conditions and corrosion ▪ Applicable in every season and weather condition ▪ Reusable until spoiled ▪ Saving water, energy, fertilizer, herbicides and cutting labor costs ▪ Increasing the cultivation area and product amount ▪ Facilitating machinery use on farms due to the absence of traditional irrigation barriers ▪ No requirement for expert labor, speedy and easy installation and maintenance ▪ Recyclable
Thickness	Typically, 400 to 700 microns (based on the customer's request)
Width	Typically, 5 to 25 cm (2 to 10 Inches) (based on the customer's request)
Color	Transparent, Yellow, Green, White, Blue, Black, Milky, Silver, etc. (based on the customer's request)
Durability	6 to 24 months
Packaging	Rolls wrapped with PE film, inner core diameter is 76 mm, the core could be further supported by plastic lids on both ends of the roll.



GREENHOUSE FILMS

Greenhouse is a safe environment for protecting and growing plants without any harm and obstacles. Greenhouse films are one of the plastic covers that protect greenhouse plants and are manufactured from a combination of LDPE, HDPE, LLDPE and various additives in order to produce different effects for covering vegetables, plants and fruits.

The type of additives used in production of the film and also the thickness, varies based on the customer's required durability, usage location, type of soil and pesticides.

PlasticKar Greenhouse films are produced from high quality raw material and additives in order to increase the performance and durability of the product (film).



Product Name	Greenhouse Film
Other Names	Greenhouse Cover, PE sheeting for covering crops, Agriculture Plastic, Greenhouse Plastic
Application	<ul style="list-style-type: none"> ▪ Protection of plants against atmospheric conditions ▪ Less use of pesticides ▪ Improving and increasing cultivation
Features	<ul style="list-style-type: none"> ▪ Improving product quality ▪ Strong and durable ▪ Available in normal and customized types for use in specific areas ▪ Durability based on customer's requirement (1 to 5 Yrs)
Additives	<ul style="list-style-type: none"> ▪ Anti-dust ▪ Anti-fog ▪ EVA Co-polymer ▪ Infrared (IR) ▪ Light diffusion ▪ UV stabilizer ▪ Disease control filter
Thickness	Typically, 100 to 300 microns (based on the customer's request)
Width	Typically 5 to 10 meters (based on the customer's request)
Color	<ul style="list-style-type: none"> ▪ Transparent ▪ Semi Transparent ▪ Yellow or Lime ▪ Green or Fluorescent Green
Packaging	Rolls wrapped with PE film, inner core diameter is 76 mm, the core could be further supported by plastic lids on both ends of the roll.



GREENHOUSE THERMAL SHEET

The purpose of using Greenhouse Thermal Sheet is to preserve heat generated by the sunlight and prevent heat loss during the nights inside the greenhouse.

PlasticKar's Greenhouse Thermal Sheet are produced from high quality raw material and additives in order to increase the performance and durability of this sheet. These films reduce the temperature deviations of night-time and day-time in the greenhouse by absorbing infrared radiation.

Product Name	Greenhouse Thermal Sheet
Other Names	Greenhouse Thermal Blanket, Thermo Film, Thermal Film, Greenhouse Inner Cover, Greenhouse Inner Layer
Application	Preventing heat loss inside the greenhouse
Features	<ul style="list-style-type: none"> ▪ Reduction in fuel cost ▪ Less energy consumption (energy saving) ▪ Recyclable
Additives	<ul style="list-style-type: none"> ▪ Anti-fog ▪ EVA copolymer ▪ Infrared (IR) filter
Thickness	80 to 200 microns (based on the customer's request)
Width	4 to 10 meters (based on the customer's request)
Color	Transparent (or based on the customer's request)
Packaging	Rolls wrapped with PE film, inner core diameter is 76 mm, the core could be further supported by plastic lids on both ends of the roll



LOW TUNNEL FILM

Low tunnel films are used for short duration cultivations such as watermelon, melons, strawberries, and other crops.

Lower tunnels have a semi-circular structure that facilitates the absorption of sun rays, and protects crops from environmental damage and insects. On the other hand, it reduces the night and day temperature variations. It also minimizes water loss.

Product Name	Low Tunnel Film
Other Names	Crop Cover, Mini Tunnel Film, Low Tunnel Greenhouse Film, Mini Greenhouses Film, Low Loop Films
Application	<ul style="list-style-type: none"> ▪ Cultivation of watermelon, melons, strawberries, etc. ▪ Protecting plants against storms. ▪ Reducing water consumption ▪ Maintaining soil temperature
Features	<ul style="list-style-type: none"> ▪ Increasing nutrient intake by plants ▪ Temperature optimization for plant growth ▪ Protecting plants against climate aggressions ▪ Suitable for cultivation during winter ▪ Recyclable
Additives	<ul style="list-style-type: none"> ▪ Anti-fog ▪ Light diffusion ▪ IR ▪ EVA co-polymer ▪ UV stabilizer
Thickness	Typically, from 50 to 100 microns (based on the customer's request)
Width	Typically, from 1 to 6 meters (based on the customer's request)
Color	<ul style="list-style-type: none"> ▪ Transparent / Lime/ Green
Packaging	Rolls wrapped with PE film, inner core diameter is 76 mm, the core could be further supported by plastic lids on both ends of the roll



MULCH FILM

Nowadays the use of plastic mulch film in agriculture is increasing to improve cultivation and optimize plant growth. Plastic mulch film is made of Polyethylene which is used in crop cultivation. Its main features are the prevention of weeds from growing, maintaining and increasing soil temperature, preventing evaporation and loss of water.

More specialized mulches can be used to accelerate and improve plant growth and disposal of insects and pests.

It is also used as an insulation between plant and soil to avoid the contact of the fruit with the soil, which prevents moisture penetration into fruit and significantly decreases fruit decay due to plant sensitivity to disease, mold and fungus.

PlasticKar is able to create punches on the film if required by the customer.

Product Name	Mulch Film
Other Names	Reflection Film, Mulch Plastic, Agriculture Mulch, Hydroponic Reflective Covers
Application	<ul style="list-style-type: none"> ▪ Maximizing light reflection ▪ Preventing weed growth ▪ Disposal of insects ▪ Maintaining soil moisture and heat
Features	<ul style="list-style-type: none"> ▪ Expediting planting time ▪ Reducing fertilizer leach-out ▪ Improving product quality ▪ Reducing soil compaction ▪ Reducing damage to the roots ▪ Easy to use ▪ Recyclable
Thickness	Typically 20 to 100 microns (based on the customer's request)
Width	Typically, 50 cm to 6 meters (based on the customer's request)
Packaging	Rolls wrapped with PE film, inner core diameter is 76 mm, the core could be further supported by plastic lids on both ends of the roll



Brown

- Allows the heat to pass and warm-up the soil during daytime
- Reduces heat losses during night
- Adequate opacity to prevent weed growth

Yellow

- Attracts certain insects (such as the whitefly) on its surface and prevents damages on the plants

Yellow/Brown

- Combines the benefits of yellow and brown film

Green translucent

- Adequate weed control and at the same time
- Proper light transmission and soil heat preservation

Silver/Black

- prevents weed growth
- Light reflection by the silver repels insects and protects the plants from viruses
- Reflection of light brings freshness to the color of red fruits

Black/White

- Ensures perfect weed control
- Light reflection by the white side
- Increases the useful light received by plants

Transparent

- Strengthening the root and speed of the harvest time
- Reducing climate effects on growing crops
- Crop visibility
- Suitable for cucurbits
- Suitable for cold weather



SOIL DISINFECTION FILM

In some areas, for cultivating shallow roots such as strawberries, Soil Solarization (passive solar heating) or soil disinfection is carried out using chemicals such as methyl bromide. Plastic sheets are used to protect the disinfectant and prevent its evaporation from the soil. The purpose of using these films is to preserve disinfectants in the soil against pests, diseases, viruses and harmful bacteria.

These films usually last for 2 months and contain UV stabilizer. If the customer needs to improve the product (film) durability, the amount of this additive will be increased.

If the film is used during solarization, an Anti-Drip additive may also be applied to prevent droplets formation on the surface of the film and increase heat transfer to the soil.



Product Name	Soil Disinfection Film
Other Names	Incense Film, Incense Cover, Disinfectant Coating
Application	<ul style="list-style-type: none"> ▪ Disinfecting soil from the environment and preventing the destruction of useful organisms ▪ Disinfection of soil by chemicals ▪ Reduce solarization time
Features	<ul style="list-style-type: none"> ▪ Control of several soil diseases ▪ Affordable price ▪ Easy installation ▪ No requirement for maintenance ▪ Recyclable
Additive	<ul style="list-style-type: none"> ▪ UV stabilizer ▪ Anti-Drip
Thickness	Typically 35 to 70 microns (based on the customer's request)
Width	Typically 2 to 10 meters (based on the customer's request)
Color	Transparent (or based on the customer's request)
Durability	Typically 2 months (or prolonged based on the customer's request)
Packaging	Rolls wrapped with PE film, inner core diameter is 76 mm, the core could be further supported by plastic lids on both ends of the roll.



VINEYARD COVER

Plastic films for covering vineyards; regular or thermal PE covers used for protecting grapevine against freeze in winter, optimizing light transmittance and minimizing heat loss.

Product Name	Vineyard Cover
Other Names	Grape cluster cover, Vineyard covering sheets, Vineyard harvesting cover
Application	<ul style="list-style-type: none"> ▪ Protecting grapevine against freeze in winter ▪ Optimizing light transmittance ▪ Minimizing heat loss
Features	<ul style="list-style-type: none"> ▪ Flexible, strong and durable ▪ Protection of grapes from rain during harvest ▪ Reducing heat loss during nights ▪ Reducing plant stress caused by high energetic sun rays (light diffusion effect) ▪ Providing better quality and earlier harvest ▪ Affordable price ▪ Easy installation ▪ No requirement for maintenance ▪ Recyclable
Thickness	Typically 85 to 120 microns (based on the customer's request)
Width	Typically 2 to 6 meters (based on the customer's request)
Color	Transparent / Yellow / Green (based on the customer's request)
Durability	6 months
Packaging	Rolls wrapped with PE film, inner core diameter is 76 mm, the core (so called bobbin) could be further supported by plastic lids on both ends of the roll



BANANA BUNCH COVER

Blue PE bags used for banana cultivation to improve bananas' quality, appearance and protection from birds and pests.

Based on the customer's request, it can be produced in rolls.

Product Name	Banana Bunch Cover
Other Names	Banana Ripening Bags, Banana Preservation Blue Sacks
Application	Banana cultivation
Features	<ul style="list-style-type: none"> ▪ Allowing faster harvest ▪ Allowing adequate ripening of the banana ▪ Improving the quality and appearance of the fruit ▪ Protecting from external ambient conditions (wind, rain, sun) ▪ Preventing the peel from injuries (marks and scratches) ▪ Preventing birds, insects & pests from touching and damaging the fruit
Thickness	Typically, from 20 to 45 microns (based on the customer's request)
Width	Based on the customer's request
Length	Based on the customer's request
Color	Blue
Packaging	Rolls wrapped with PE film, inner core diameter is 76 mm, the core could be further supported by plastic lids on both ends of the roll. If produced in form of sacks, the packaging will be in bulk, packed in 10 or 20kg PE bags. Otherwise, the packaging will be based on the customer's request.



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