Desorate AZ granular agent

1. Characteristics
2. How it works
3. How to use
4. Example of effect
5. Toxicological information
6. Notes for safety

1. Characteristics

1. Desorate is a non-selective weed killer.
It is effective to wide range of weeds especially to bamboo grass.

2. Desorate acts fast.
The effect starts to appear within 1~2 weeks after dispersion.
The effect depends on kind of weeds.

3. Wide range of application
Non-crop land: housing site, parking lot
Crop land: paddy field after harvest, causeway between paddy field, Orchard, Mulberry field

4. Low toxicity
Less toxic to human, cattle and aquatic organism comparing other weed killers.
(rat LD_{50} > 5000mg/kg)

5. Safe to environment
Easily decomposed and does not stay long in soil.
60 years of sales history with average 1000MT/year of sales in Japanese market including use for railroad site.

Table 1　Content of Desorate AZ

	$NaClO_3$	$NaHCO_3$	Minerals
Content	50%	30%	20%
CAS reg. No.	7775-09-9	144-55-8	-
Note	Active ingredient	Flame retardant	Binder

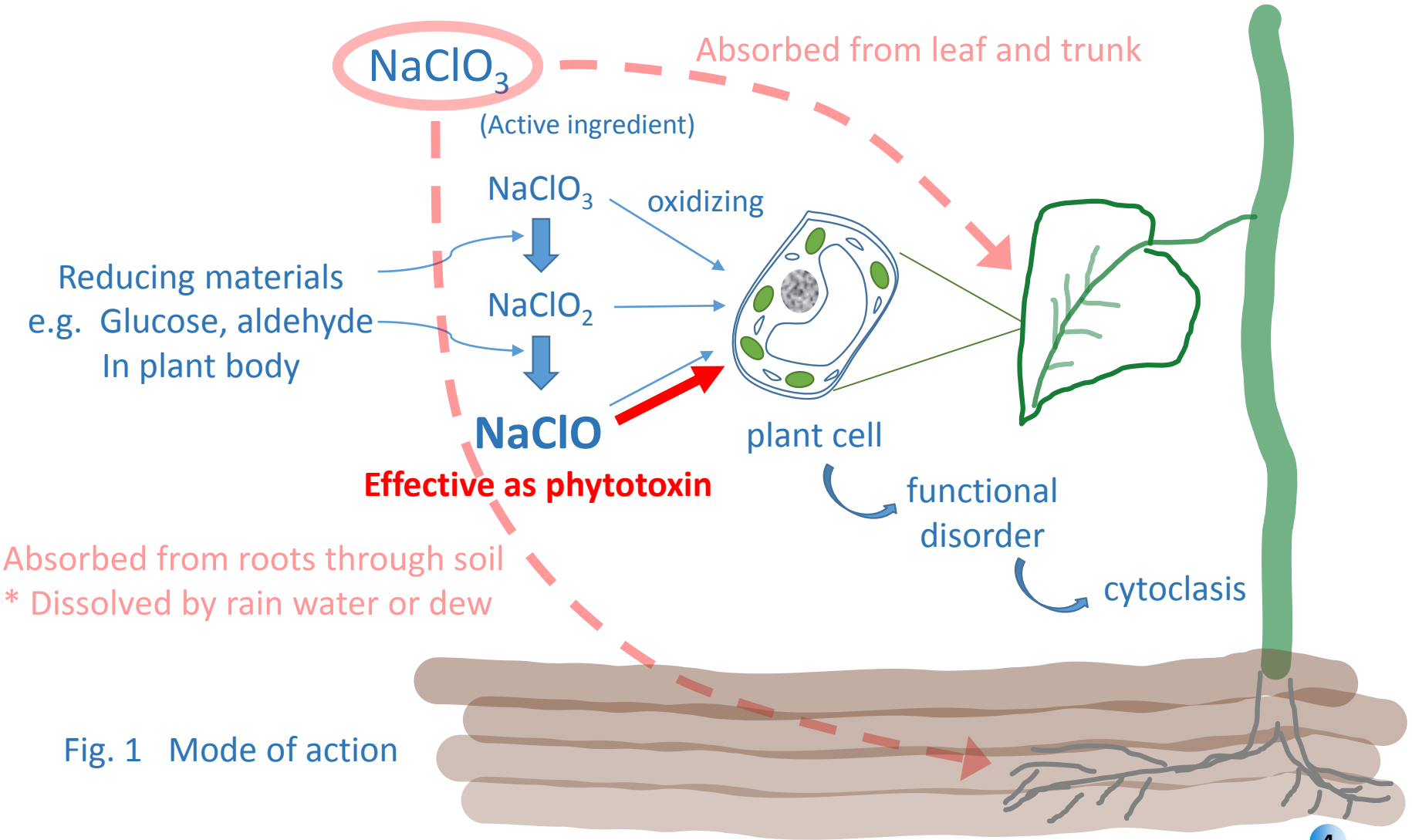

Fig. 1 Mode of action

1. Use it when new leaves sprout. This is the most effective timing to apply.

2. Expression of effect
   It takes1 ~ 2 weeks to start to be effective because grains of Desorate have to be dissolved by rain water first, penetrate into soil, then absorbed by roots of weeds.
   It will take further 2 ~ 4 weeks for most of weeds to wither up.

   Weeds easy to work for
   Asteraceae, Lamiaceae, Brassicaceae which have soft leaves

   Weeds hard to work for
   Weeds with leaves which have thick and minutes structure
   Weeds with rhizomes growing thick e.g. *Fern*, *Polypodiaceae*

For weeds hard to work for, either **high dose** application or **concentrated dispersion** to the neighborhood of the roots is effective.

3. Notes for application

1) Avoid dispersion when **heavy rain fall** is expected right after dispersion.
Desorate will be lost either deep into soil or flow away by heavy rain.

2) Avoid dispersion when soil is expected to be **too dry for long time**.
The grain of Desorate doesn't dissolve and penetrate into soil.

3) Avoid dispersion where soil is a **densely clayish** earth.
Desorate cannot penetrate and flow a way on its surface.

4) When soil contains considerable amount of **organic materials** and **high water content**, decomposition of Desorate may accelerate.

5) After burn off the field, when considerable amount of **charcoal** still remains on the surface of the soil, avoid dispersion.
The charcoal accelerate decomposition of Desorate.

4. Effective period

Assuming climate in temperate region, effect of Desorate lasts approximately **2** month.

After **3** month later from the last dispersion, planting or seeding is possible.

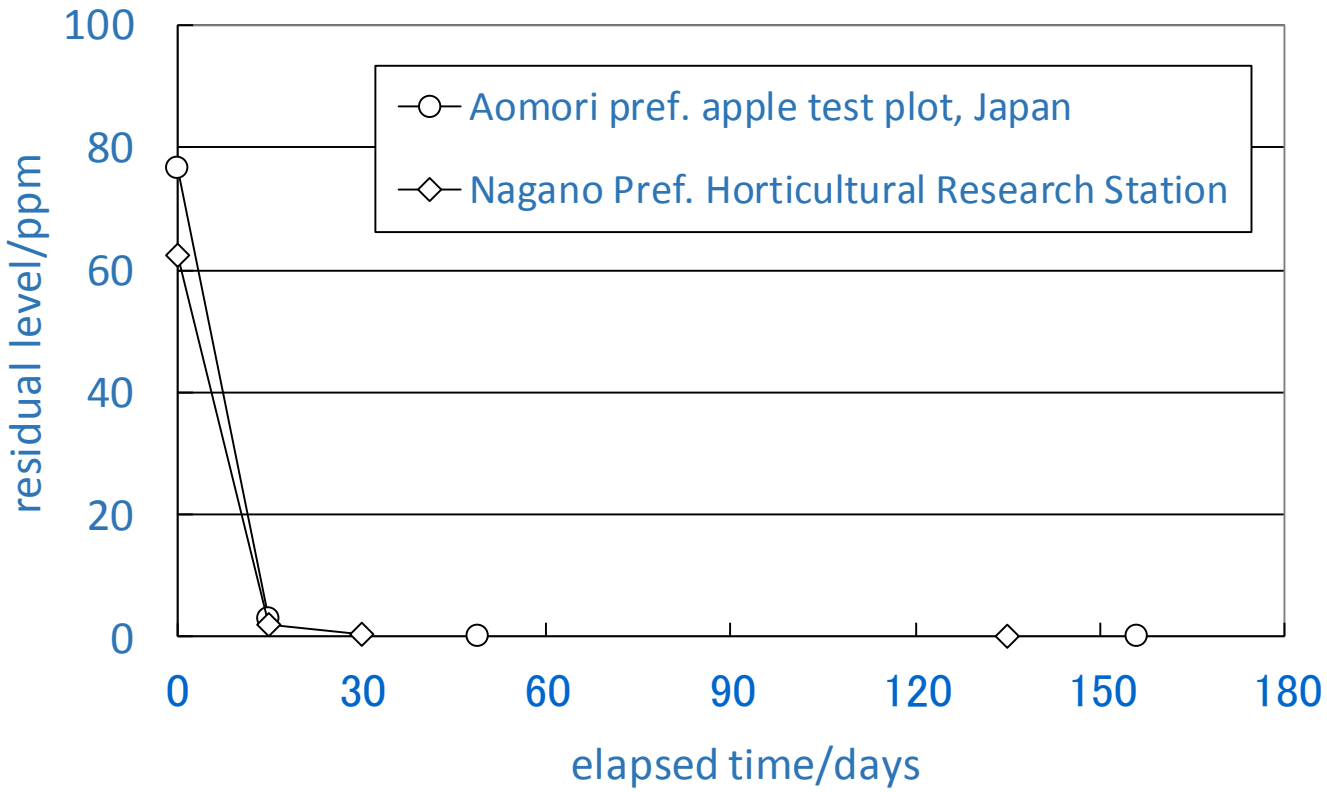

Fig. 2 Residual amount of Desorate in soil
Initial dispersion amount 9kg/10a(*)
* 1a=100m^2

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Table 2-1. Example of applications

crops	applicable site	applicable weeds	application timing	dose	No. of applications	application method	total No. of application of agrochemicals containing $NaClO_3$
The crops to cultivate after the cleaning	reclaimed land	annual and perennial weed bush bamboo grass pampas grasses	Weed growth period (except snow and soil freezing season)	15～25kg/10a	1 or 2 times	uniform dispersion to all surface	—
						dispersion from air	
cyptmeria cypress pine larch spruce fir	site preparation					uniform dispersion to all surface	within 3 times
						dispersion from air	
beeches birch	weeding			10～20kg/10a		uniform dispersion to all surface	
						dispersion from air	
cyptmeria cypress pine larch spruce fir	site preparation or weeding	pampas grass	weed growth period (height of weeds is 20cm or less)	30g/20 cm stump diameter 60g/30 cm stump diameter 85g/40 cm stump diameter	once	application to stubs	
trees	park bank parking lot road side playground housing lot	annual and perennial weed	beginning ~ middle of weed growth period	15～25kg/10a	within 3 times	Spraying to stems and leaves of weeds growing in neighboring ground except planting place	within 3 times (if one time of full-scale soil dispersion is done, additional only one time dispersion to weed stems and leaves is allowed)
	slope	bamboos	weed growth period	45～60kg/10a	once	Dispersion to soil surface except planting place	

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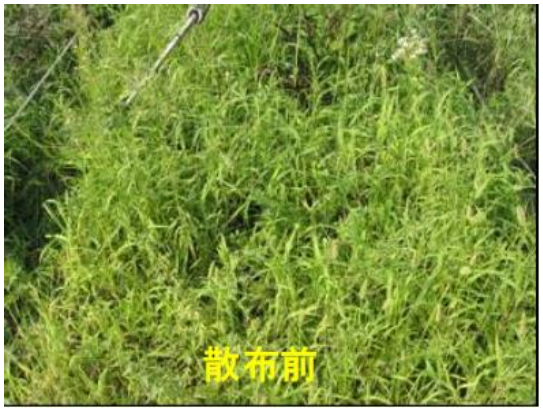
Table 2-2. Example of applications (2)

crops	applicable weeds	application timing	applicable soil	amount used	No. of applications	application method	total No. of application of agrochemicals containing $NaClO_3$
paddy (after harvest)	annual weed perennial gramineous weed	after harvest	all soil type	20～25kg/10a	once	Dispersion on soil surface after harvest	—

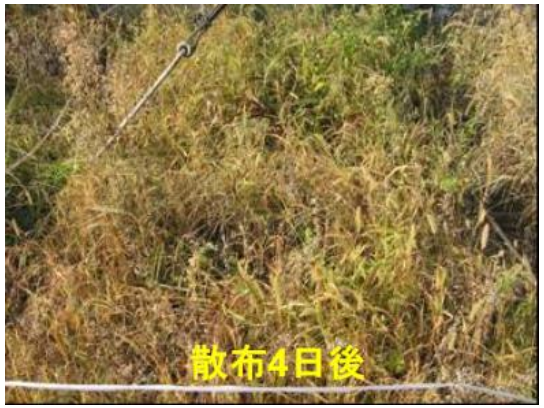
a) Before dispersion

b) 2 month later

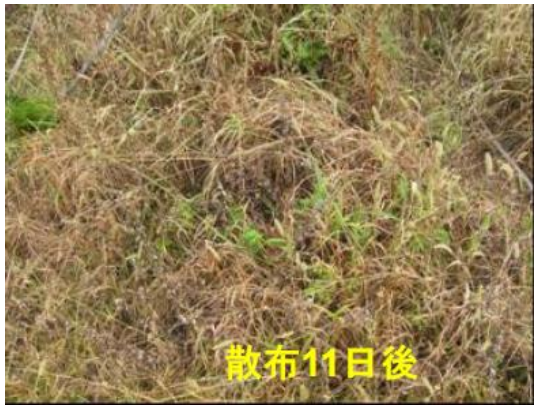
Fig. 3 Bamboo grass
Tottori, Japan
Dispersion in October, Dose 25kg/10a



a) Before dispersion



b) 4 days later



b) 11 days later

Fig. 4　General vegetation
Gunma, Japan
Dispersion in October, Dose: 25kg/10a

a) Before dispersion

b) 6 month later

Fig. 5　Paddy after harvesting
Tottori, Japan
Dispersion in October, Dose: 25kg/10a

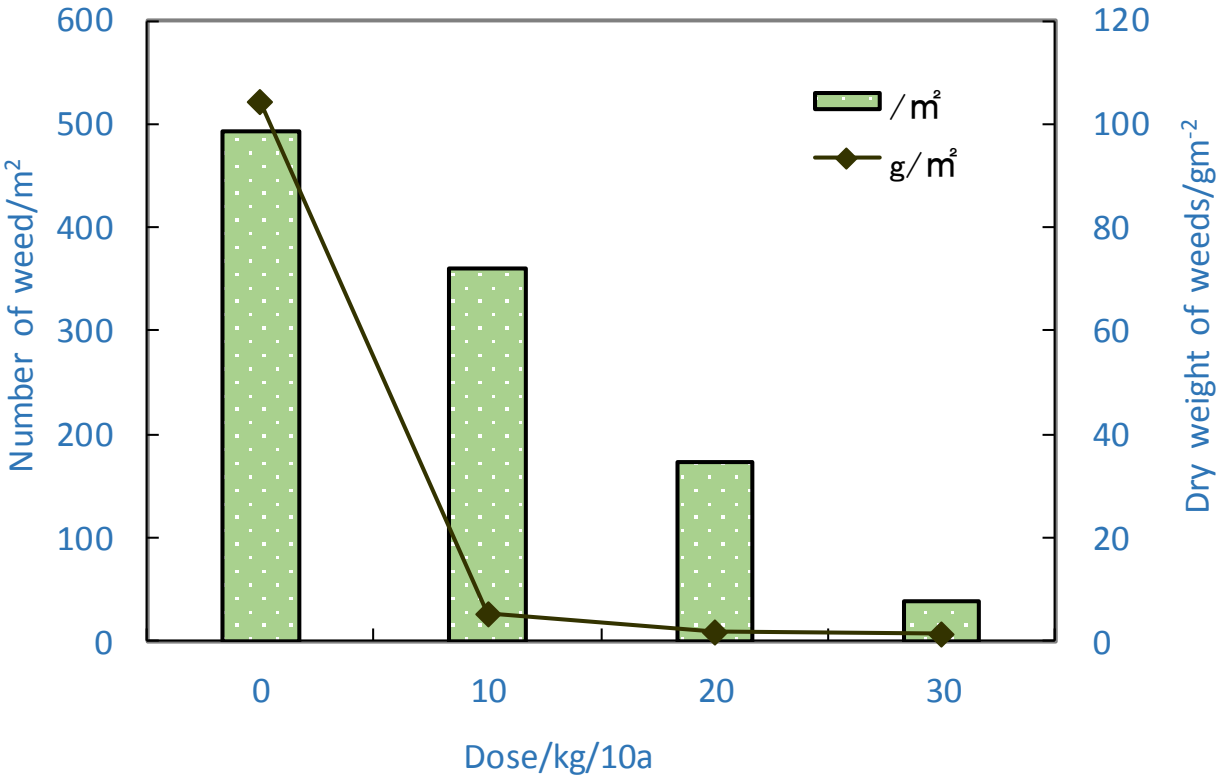


Fig. 6 Effect to paddy after harvesting, Gunma Japan
Harvesting : 3rd Nov.
Dispersion : 23rd Nov.
Investigation : 24th Apr. (next year)

Table 3 Mammalian toxicity

Mammalian toxicity			
Acute oral toxicity	Rat ♀♂	LD_{50} > 5000mg/kg	Oral: Not classified
	Mouse ♀♂	LD_{50} > 5000mg/kg	
Acute dermal toxicity	Rat ♀♂	LD_{50} > 2000mg/kg	Dermal: Category 5
Eye primary irritant	Rabbit	Moderate irritation	Category 2B
Skin sensitization	guinea pig	No sensitization	Not classified
Germ cell mutagenicity	Ames test	Negative	Classification not possible
	Rec assay	Negative	
	Chromosome aberration test	Negative	
Carcinogenicity	Product contains 5% of crystalline silica (Category 1A)		Category 1A as mixture
Specific target organ toxicity (single exposure)	Product contains 5% of crystalline silica (Category 1)		Category 2 (respiratory system) as mixture
Specific target organ toxicity (repeated exposure)	Product contains 5% of crystalline silica (Category 1)		Category 2 (respiratory system, Kidney) as mixture

Inhalation, respiratory sensitization, reproductive toxicity, aspiration hazard: No data available

Table 4 Eco toxicity

Eco toxicity			
Hazard to aquatic environment (acute)	Rainbow trout	LC_{50} (96h) > 3950mg/L	Not classified
	Daphnia magna	EC_{50} (48h)> 1500mg/L	
	Algal growth inhibition test	EC_{50} > 1000mg/L	

Persistence and degradability, habits accumulation, mobility in soil: No data available

1. Keep Desorate away from fire
1) Do not smoke near Desorate.
2) Do not bring igniting devices (match, lighter) when work with Desorate.
3) Storage for Desorate must be strictly fire prohibited area with "FIRE PROHIBITED" sign.

2. Do not mix Desorate with organic substance (dry fallen leaves, rubber, alchol, petrol, clothes etc.) then dry them up. $NaClO_3$ itself is not flammable but when organic substances with reducing ability are mixed into it, they might be flammable or explosive.

3. After working with Desorate, wash clothes and shoes thoroughly with water.

4. Storage
Do not store Desorate with flammable substance, e.g., C, P, S, petrol, ammonium salts, ammonium fertilizers, etc. in the same place.
The storage must be locked.

5. Device for dispersion

If automated dispersing device is necessary, such device should not have structures which gives intense friction or impact to the grains of Desorate. Also any foreign substances should not get into the dispersion device.

Devices similar to those shown in Fig. 7 are recommendable for small scale trials.

Fig. 7 Examples of dispersion devices for small scale trials

6. Corrosive to Iron

Desorate is corrosive to Iron. Be careful not to let Desorate contact with car etc.

7. Cows in grazing

Cows like somewhat salty taste of Desorate. Cows eat even toxic weeds which cows normally avoid if Desorate is dispersed on it. Therefore cows should not be allowed to enter plots where Desorate is dispersed.

Thank you very much for your attention !

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